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DEVELOPMENT OF A NEW TECHNIQUE FOR IMAGE RECONSTRUCTION, ENHANCEMENT, AND VISUALIZATION

- Final Report on AFOSR Contract F49620-90-C-0028 -

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DEVELOPMENT OF A NEW TECHNIQUE FOR IMAGE RECONSTRUCTION, ENHANCEMENT, AND VISUALIZATION

Principal Investigator: Dr. Steven A. Orszag

1. INTRODUCTION

The problem of describing and reconstructing a surface, both analytically and visually, has been extensively addressed in this work. Various algorithms have been developed, tested, and compared and several conclusions have been reached. They are: (1) If the surface information is given on a uniform grid, the surface is best described by a set of contour plotting routines that exploit the GL graphics libraries both in a solid as well as a wire-mesh framework; (2) If the surface information is given on a non-uniform grid, the surface can be described by Delaunay triangulation, a sophisticated graphics computer, or by interpolation back to a uniform grid. Each of these methods possesses certain advantages over the others. In the event of insufficient information on the surface, two basic methods have been employed: (1) an algorithm to fill in "missing" information that employs Delaunay triangulation; and (2) interpolation amongst various grid points of known data assuming that the surface is relatively smooth. In the case of distinct missing information on outliers (regions of the surface possessing extremal properties missing from the original surface), no progress has been made.

2. TECHNICAL BACKGROUND

In general, a surface is described by a function, such as f(x,y,z)=const Alternatively, a surface can be described by z = g(x,y), with the understanding that g(x,y) can take on multiple values of the surface folds back on itself. A typical area of interest to the Air Force is a surface reconstruction of photographs taken from high altitude. In some portions of the photographs where high resolution is needed, certain blurriness associated with absence of resolution may need to be improved. Furthermore,

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the need to remove some white noise from the picture may result in a distinct sharpening of the picture. Statistically, as long as the surfaces involved are very smooth, standard regression analysis could very successfully yield the desired results. However, the information that one wants to obtain are more often than not associated with some characteristics that are absent from the general smooth background of the images.

There are two distinct problems in surface reconstruction:

- (i) Decomposition of the surface into elements.
- (ii) Smoothly connecting these elements by interpolation.

The best solution to these problems is different for uniform grids than it is for non-uniform grids.

For non-uniform grids, the first problem can be solved by the Voronoi-Delaunay construction. Each vertex is surrounded by a Voronoi cell, defined as that cell that contains points which are closer to this vertex than to any other. The boundaries between neighboring Voronoi cells are lines, equidistant from a pair of vertices. Connecting all such pairs by links generates a Delaunay triangulation. We exploit this geometrical construction by observing that each triangle (abc) involves vertices which are Voronoi neighbors. There is a point Y where all three Voronoi cells (a,b,c) touch. By construction, all three vertices a,b,c are equidistant from Y so that these points are on the circle centered on Y. No other vertex can exist inside this circle by definition of the Voronoi cells. This property has been used in the construction of an incremental algorithm for Delaunay triangulation. We have developed an algorithm that accomplishes this triangulation recursively. Strictly speaking, the task is to add a point to an existing triangulation of N points. An added point exists and is contained inside one of the existing triangles. If we connect the new point to the vertices of the triangle in which it lies, we get the zeroth approximation of the triangulation of N+1 points. This triangulation is good away from the new point, but must be rebuilt in the local neighborhood of the new point. The maximum area of reconstruction is given by the circle centered on Y, and in general, it requires only a finite number of bond flips (triangle reconstructions). A recursive flipping algorithm can be derived and is very fast. The most costly operation in this incremental Delaunay triangulation is the search for the triangle surrounding the new point. Straightforward scanning takes O(N) time, but preprocessing the data accelerates the search by the following strategy.

One can order the vertices along any specific curve so that neighbors on the curve will be always close to each other on the plane. (This is a version of the traveling salesmen problem.) Such an ordering of initial points takes $O(N \log N)$ time. This ordering is needed to be performed only once, after which various progressive surfaces can be drawn using the same coordinate system. Degenerate cases, when the points are too close to each other or the (N+1)st point is too close to the side of the Nth triangulation, are treated separately to prevent numerical instabilities.

The second approach is based on the graphics implemented in the graphics terminals of Evans and Sutherland. The points are loaded on the system and are displayed simultaneously with x,y, z coordinates all belonging to the same surface. The surface can be rotated around each of the three axes and cutting planes have been introduced to isolate specific projections of the surface on a plane of choice. On a plane of choice, curves have been interpolated using optimal bicubic splines. The points are added on the splines and the files of the individualized planes get re-assembled. A perpendicular plane to the original set of parallel planes is being introduced and the added points in each of the previous planes is compared to the initial set of points on this cut plane. A least-squares estimator is performed to decide on admissibility or inadmissibility of the added points. If the set of points added to the global grid is admissible, a point-by-point elimination process for the added points is invoked until the set of added points becomes admissible. The set of points that are then admissible per

perpendicular plane are then added to the global grid and the process may be repeated until no more points are admissible. At that stage, the entire file is re-loaded on the graphics system and a surface reappears. The surface can be described by the actual collection of dots, wire-mesh, or by standard graphics shading routines on the graphics processors. We are now in the process of adapting these algorithms to the SGI GL libraries.

The third case for the non-uniform grid can be handled in two different ways. First, a uniform grid is imposed in the x-y plane. At each grid point, a characteristic radius is introduced. Each point in the x-y plane, x_i, y_i is taken into account. The number of points p in the enclosed domain is recorded and a pth Lagrange interpolation scheme is introduced to compute the value z associate with the said grid point. When all the uniform grid point values have been obtained, the interpolation scheme is checked against each existing original point. In other words, each original point is attempted to be recomputed to check for accuracy. This is done with variable orders in order for outliers estimates to be rejected. In the second case, at any vertex in the Delaunay triangulation, an arbitrary number of triangles can meet and the property of smoothness at the vertex requires a large number of local parameters. We have the following construction that satisfies all the required smoothness conditions. The Gauss formula for planes of the corresponding triangles meeting at a vertex has been used. The smooth function so obtained passes through all its neighbors. This function is usually a sum of about six terms. Three of such functions are connected inside each triangle by a similar Gauss interpolation resulting in an explicit local set of rational functions within each triangle matching their neighbors with any prescribed smoothness. The addition of the interpolated points to the original triangulated surface is composed by the set of points at the center of the Delaunay circles, i.e. vertices of the Voronoi graph which are always located in the voids of the Delaunay triangulation. Adding these circle centers does not require a search and is numerically stable. It roughly doubles the number of points omitting the points whose Delaunay circle radius is smaller than a given criterion to avoid condensation of points. After a few steps, the plane is completely covered and the process is complete.

The issue of describing a surface on a uniform grid is different in nature. An aerial photography or topographic description of a surface can in principle be described on a uniform grid since the data gathering can be digitized according to the data gatherer. At this juncture, a missing observation on the uniform grid is interpolated using standard Lagrange interpolations and data contained within noise can be filtered out by invoking standard FFT techniques. In particular, a combination of low and high-pass filters can isolate specific structures by sharpening the domain of resolution. It is believed that this technique may have the potential of image enhancement.

One of the major goals in this study is the ability to characterize an irregular surface, in particular, non-uniform surfaces obtained either from exterior sets of observations or from solutions of partial differential equations of moving fronts or equipotential surfaces. For example, the system of detecting irregular conductivity of an internal human tissue is dependent on surface potential and conductivity. A solution of the potential problem inside the bulk with isolation of equipotential surfaces is hoped to improve visualization of internal irregular tissues. It is for such surfaces that the non-uniform grid methodologies developed here will be useful.

3. IMPLEMENTATION

We have developed the algorithms specified in Tasks 1-3 of the original proposal. These are exemplified by the attached source code in Appendix I. For Task 4, we have developed a menu-driven user-based interface that is displayed with all its functions in

the attached plots. The use of this interface and code is elementary and requires minimal learning time. The code interface is implemented by use of a mouse within the graphics window. For Task 5, we provide various sets of examples of non-uniform as well as uniform grid systems. The uniform grid graphics visualization displays a system borrowed from microelectronics of contact hole printing when the surface of the electromagnetic energy intensity is displayed above a given surface. Multi-resolution is used in these calculations to address the requirements of circuit designers. Furthermore, we attach two different circuit designs (see Figs. 1-2) obtained for uniform grid implementation of two separate logic patterns for wiring and memory triggers. In both cases, GEOFORM gave a reasonably satisfactory description of the circuit and its associated resolution.

For the non-uniform grid systems, we have tested this method on geologic data, Martian topography, vortex sheets in hydrodynamics and also on a sculpture reconstructed from a few hundred points. Sometimes smoothing was needed, i.e., the points were iteratively moved towards the local second-order surfaces, least-square fitted to the nearest neighbors. Since this fit was local, it did not erase the small details at the surface of larger structures. Everything was smoothed at its own scale. This algorithm is surprisingly efficient. The Mars topography reconstruction required only 2% of randomly chosen data points. The sculpture was reconstructed from just 600 points, and the roll-up of a vortex sheet was simulated using only 1000 points. In Figure 3, we display the Delaunay triangulation of the initial mask. The reconstructed surface is displayed next to this triangulation and the internal variations in the density of the triangulation manifests in different shading to create the necessary visualization of the actual original mask. The other two segments of Figure 3 involve the reconstruction of very sharp mountain peaks on the Asian continent where the triangulation density indicated initially a sharp gradient that led to the reconstruction of the Himalayan peaks.

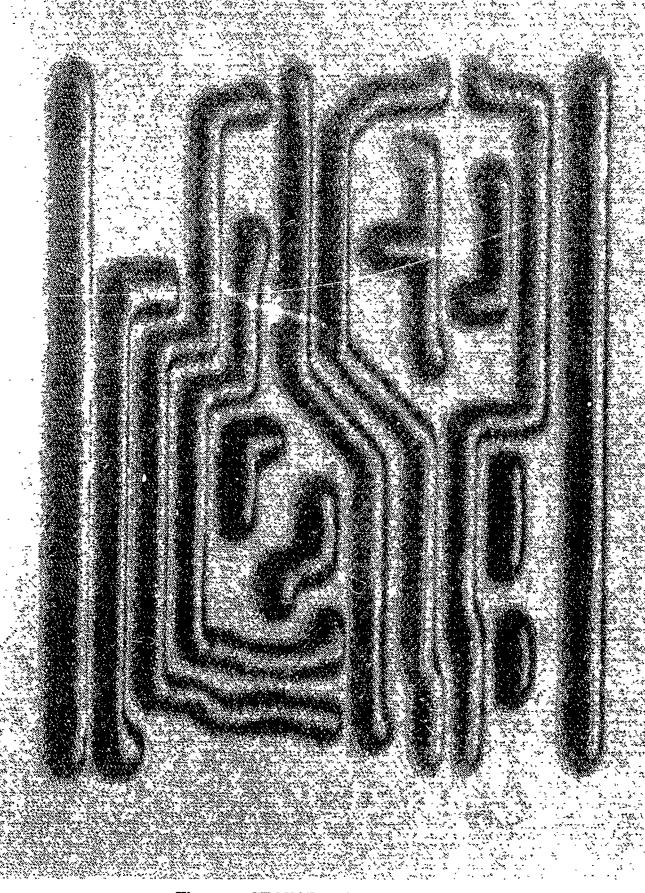
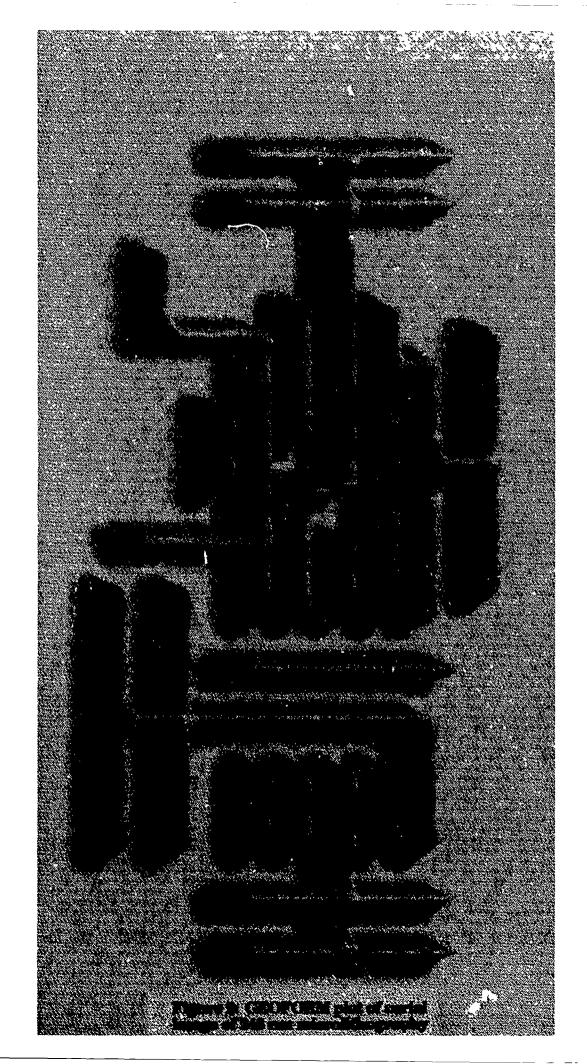


Figure 1: GEOFORM plot of aerial image of 365 nm microlithography



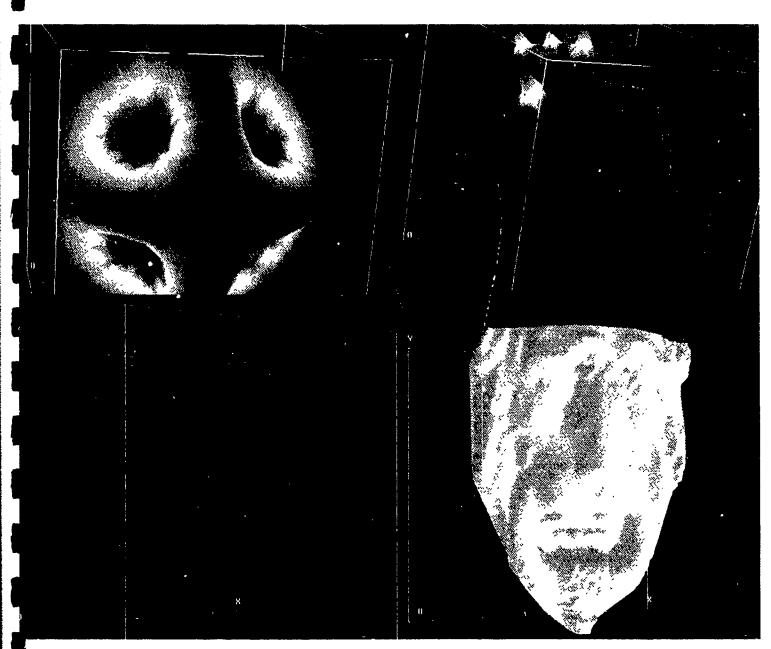


Figure 3: Examples of GEOFORM applications

Higher intensities (higher heights of the mountain peaks) are illustrated in red to emphasize the reconstructed of the missing peak. This technique could be very useful to reconstruct surfaces obtained from high altitude with blurred resolution at the extremes. The fourth quadrant of Figure 3 illustrates a reconstructed sphere with cavities inside. It could be particularly important to use this technique in the simulations of porous media where specific flow channels can be obtained to determine porosity of new materials. The dynamics of pore sizes is under current investigation.

In Figures 4-5, we display graphically the detailed mechanism of edge detection in the GEOFORM code. It is menu controlled and specific points associated with the edge of a given surface are determined locally or globally. In particular, a zoom window provides the ability to zoom in on an edge of interest. The particular example given is that of refining the edge of a 'rabbit' shaped region. It is apparent that even rough resolution suffices to solve the problem. A second graphical option associated with a collection of points is the imposition of the interior Delaunay triangulation embedded in these points.

To explain how we do this, let us consider a collection of points which lie along lines. The points may be given in any order. Our objective is to divide the set of points into subsets, such that all the points in one subset lie along a line. In other words we want to reduce our initial set of points to a set of clusters of close points. We then compress these clusters to "skeletons". These skeletons are represented as graphs with logical links between points. After this compression, one can either compare graphs with a lookup table of standard elements or simply transmit the graph. At each link of the graph one can store the number and mean dispersion of the compressed nearest points, so that one can return to the thick lines after transmission by randomly distributing points alongthe links. As compared to standard methods, this one seems to be especially well suited for graphic objects such as handwriting, fingerprints, space photos or maps.

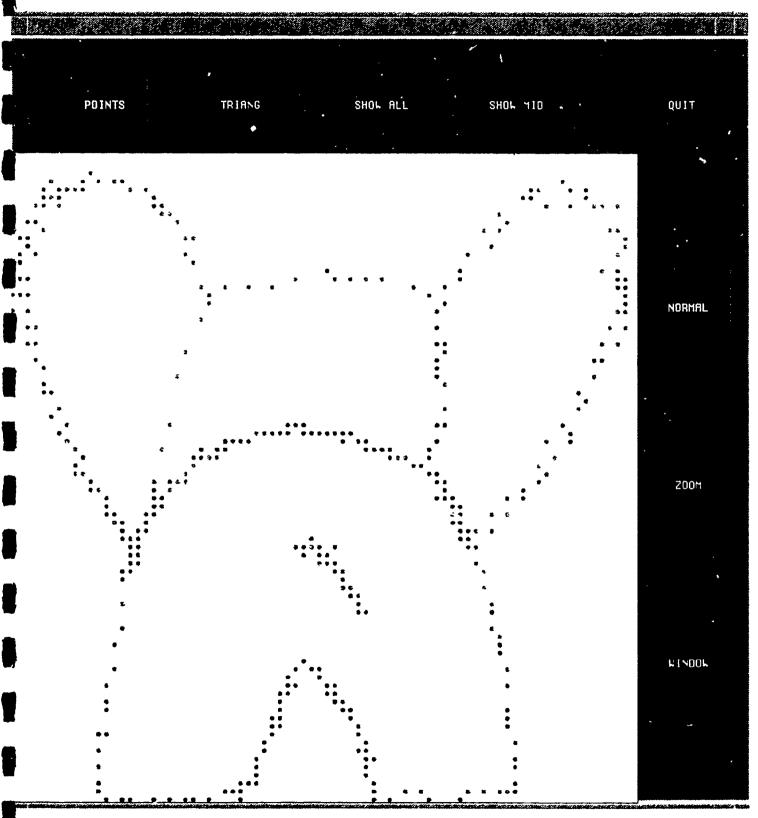


Figure 4: Edge detection: rough boundary of 'rabbit'

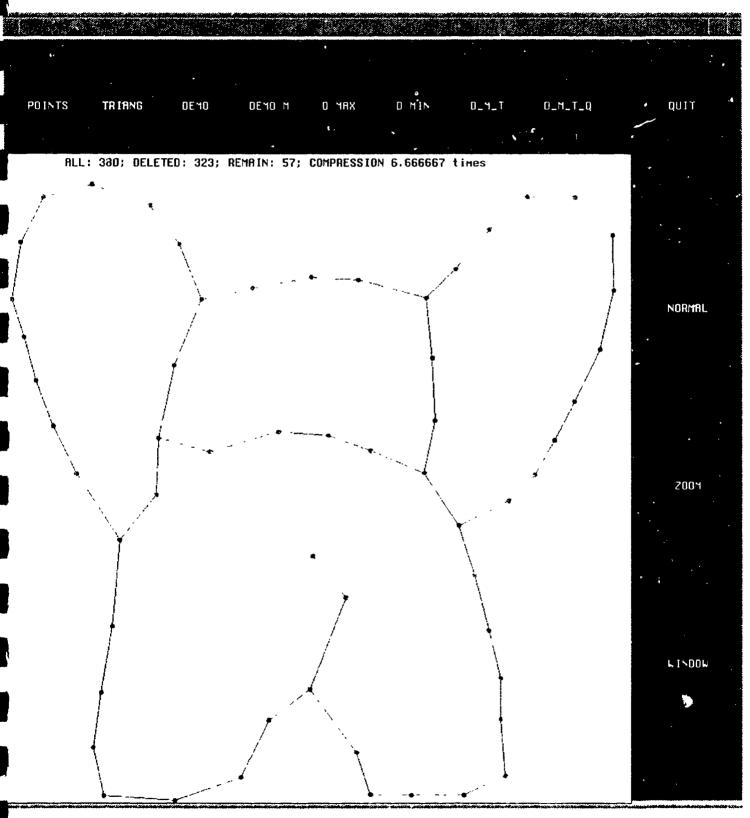


Figure 5: Edge detection: refined boundary of rabbit using GEOFORM

We use the following method. First, we construct the Delaunay triangulation of the set of given points, and then we begin a transformation of the triangulation which will extract the points lying along lines. We have developed a set of functions described below that we apply to our triangulation. The function DELETE MAX EDGE deletes the longest edge of the Delauray triangulation. The function DELETE MAX EDGE IN TRIANGLE deletes the longest edge, which does not "disconnect" the triangulation, i.e. we delete the edge only if each of its end points has at least three neighbors. The function does nothing if such an edge does not exist. The function DELETE MIN EDGE deletes the shortest edgeof the Delaunay triangulation. The function MERGE MIN EDGE merges the end points of the shortest edge into one point. This new point is placed at the center of mass of the two old points taking into account the number of points which were merged into the points before. The function MERGE MIN TRIANGLE merges the three vertices of the smallest triangle (by area) into one point. The new point is placed at the center of mass of the three vertices, taking into account the number of points which were merged into the vertices before. With these functions in hand, it remains to determine the order of applying them to the triangulation. To explore this question, we developed a tool implemented on IRIS workstations which allows us to choose which function to apply to the traingulation at any time to achieve the best line extraction. The tool collects the information about all steps and prints out the statistics on the working process. This helps to determine the best strategy for applying our functions.

The reconstruction of Martian surfaces is displayed in Figures 6-11. These illustrate extremes obtained from higher Delaunay triangulation densities with missing peaks. A solid surface with proper shading is reconstructed to visualize the actual surface obtained from discrete pieces of information.

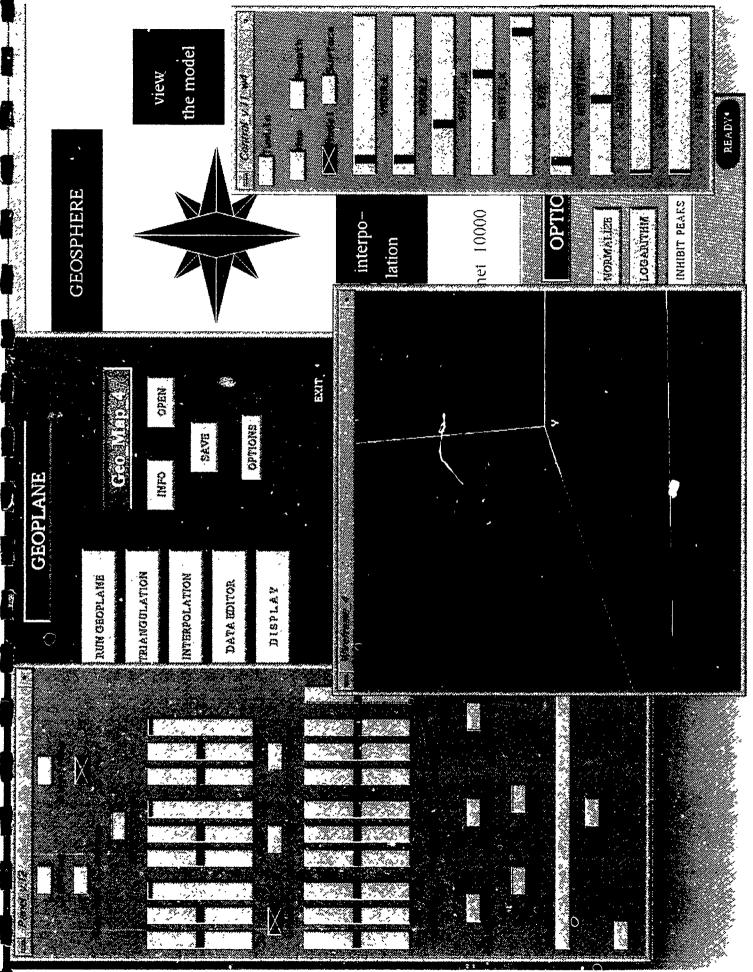


Figure 6: Menu-driven wire-mesh triangulation and refinement

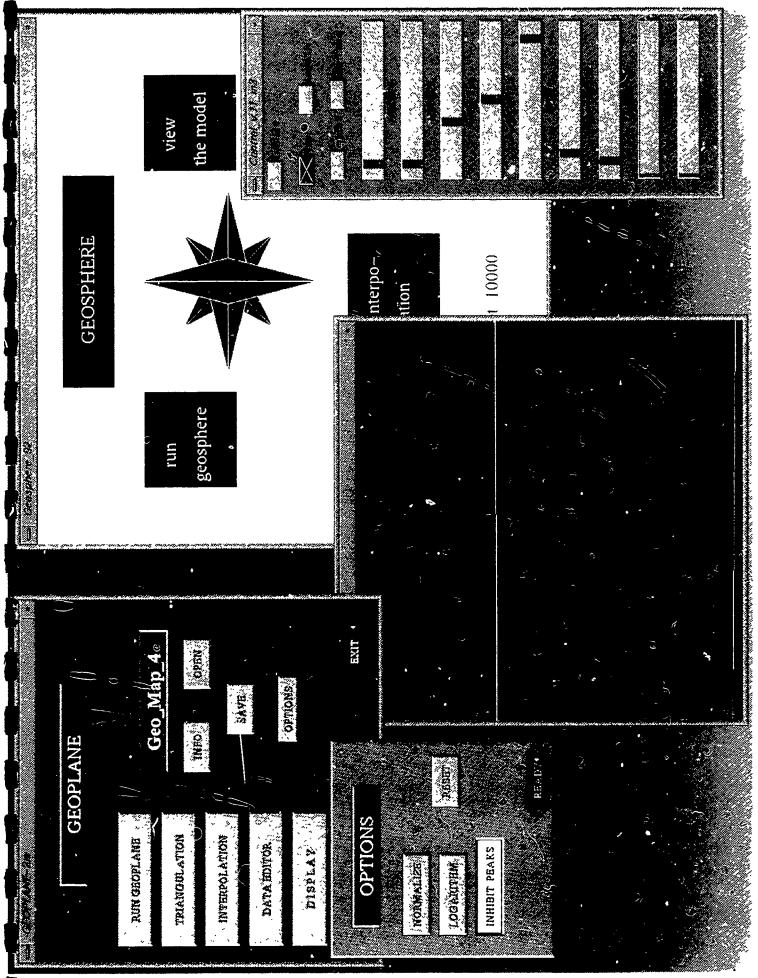


Figure 7: Menu-based control environment of GEOFORM

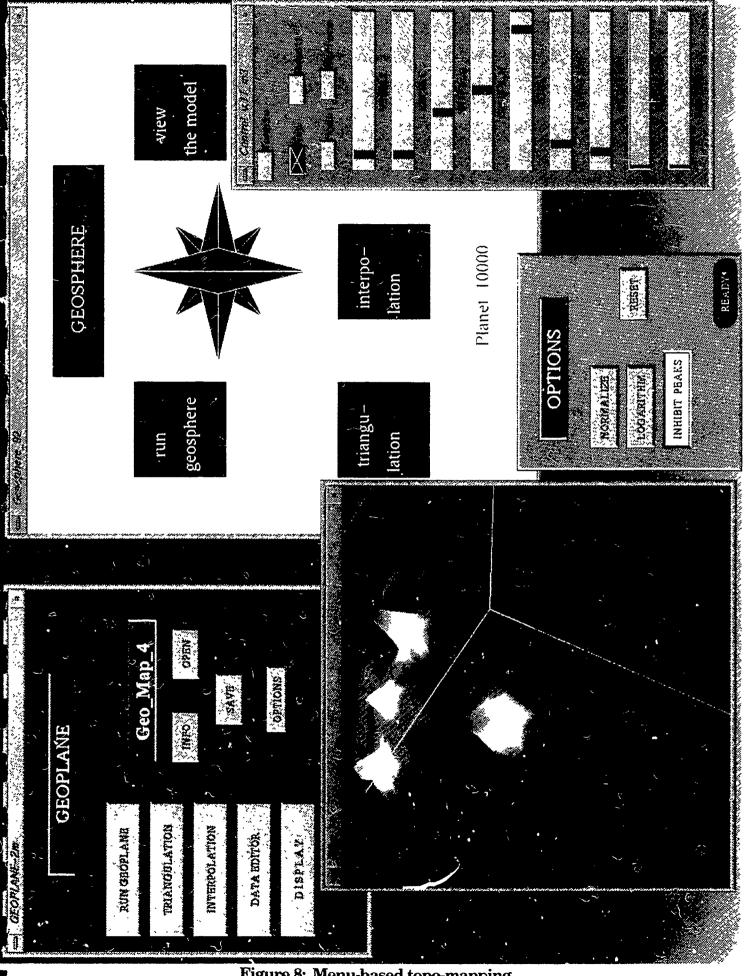


Figure 8: Menu-based topo-mapping environment of GEOFORM

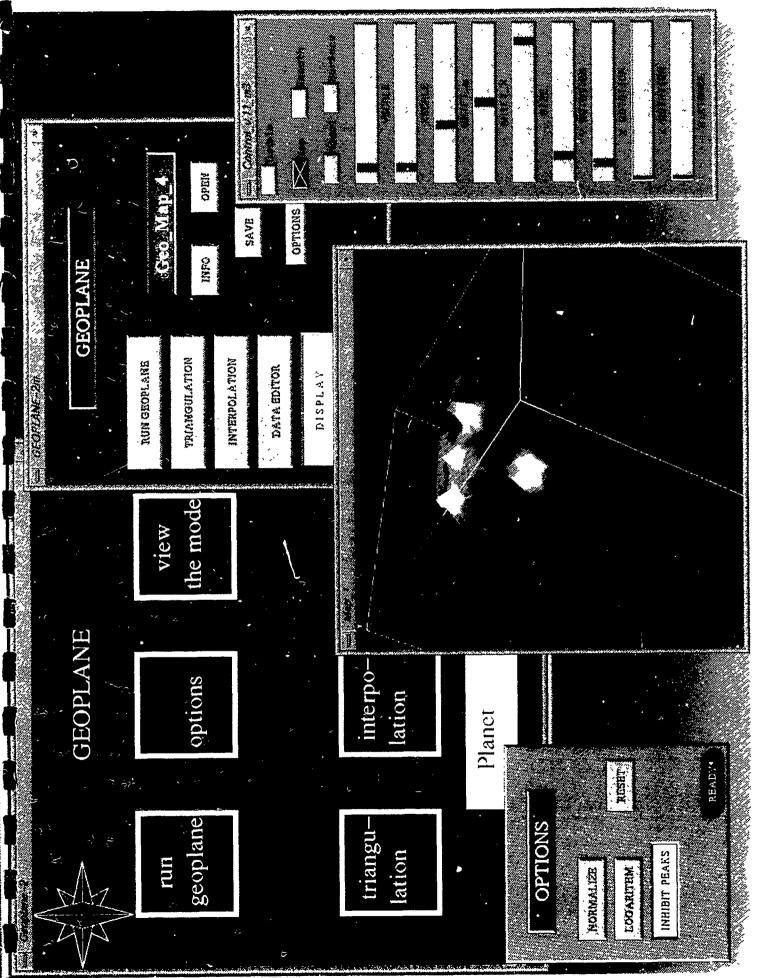


Figure 9: Menu-based mapping environment of GEOFORM

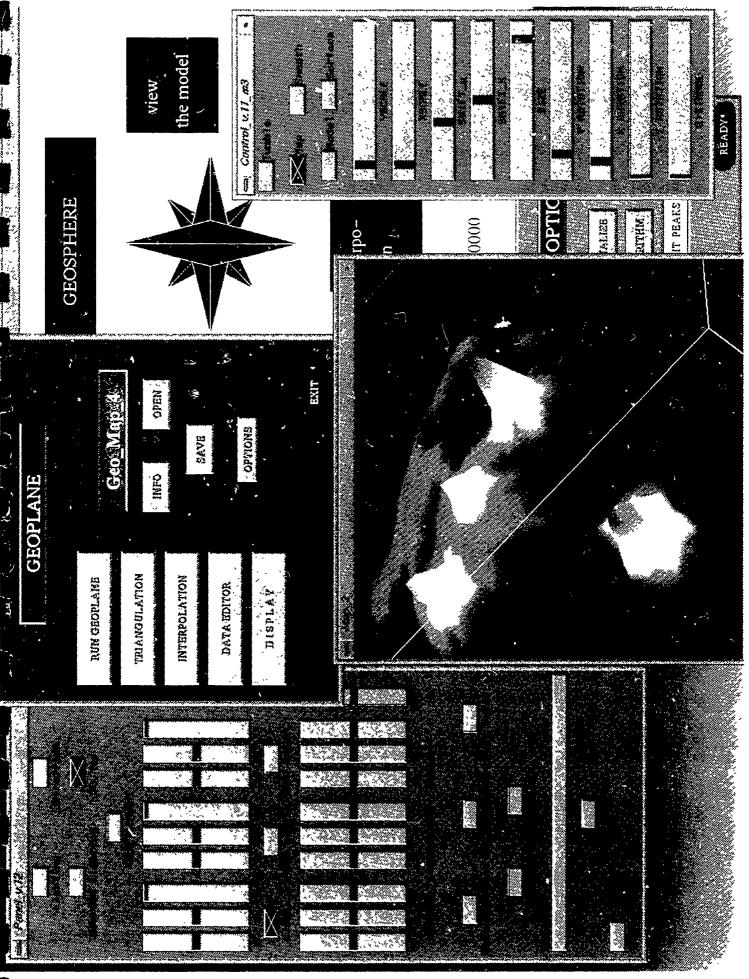
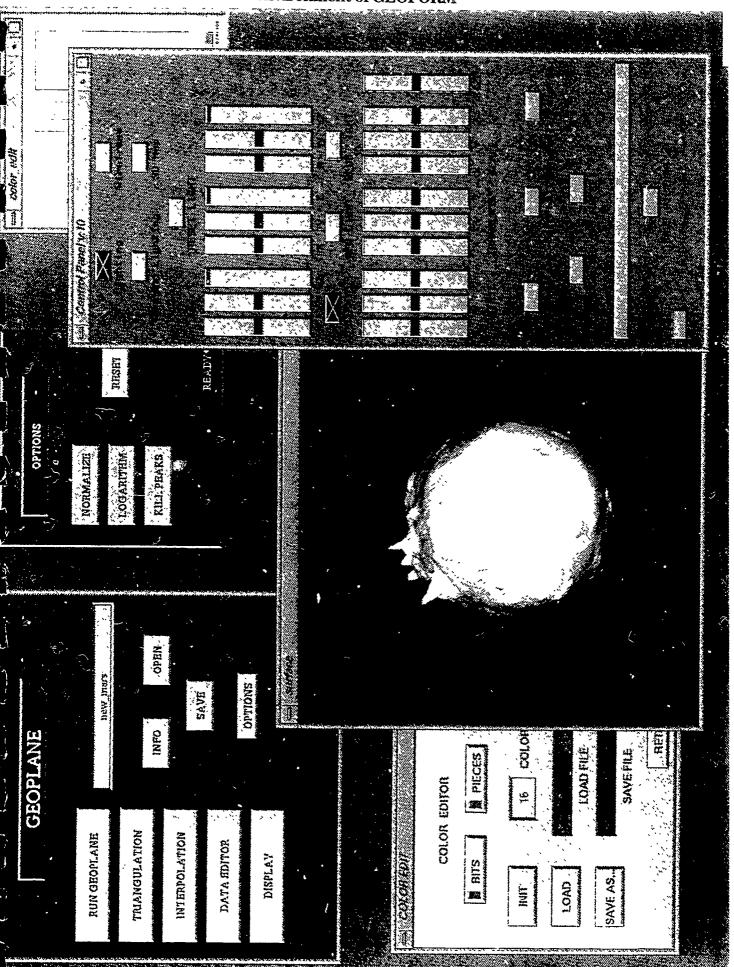


Figure 10: Menu-based zoom-in environment of GEOFORM

Figure 11: Menu-based lighting environment of GEOFORM



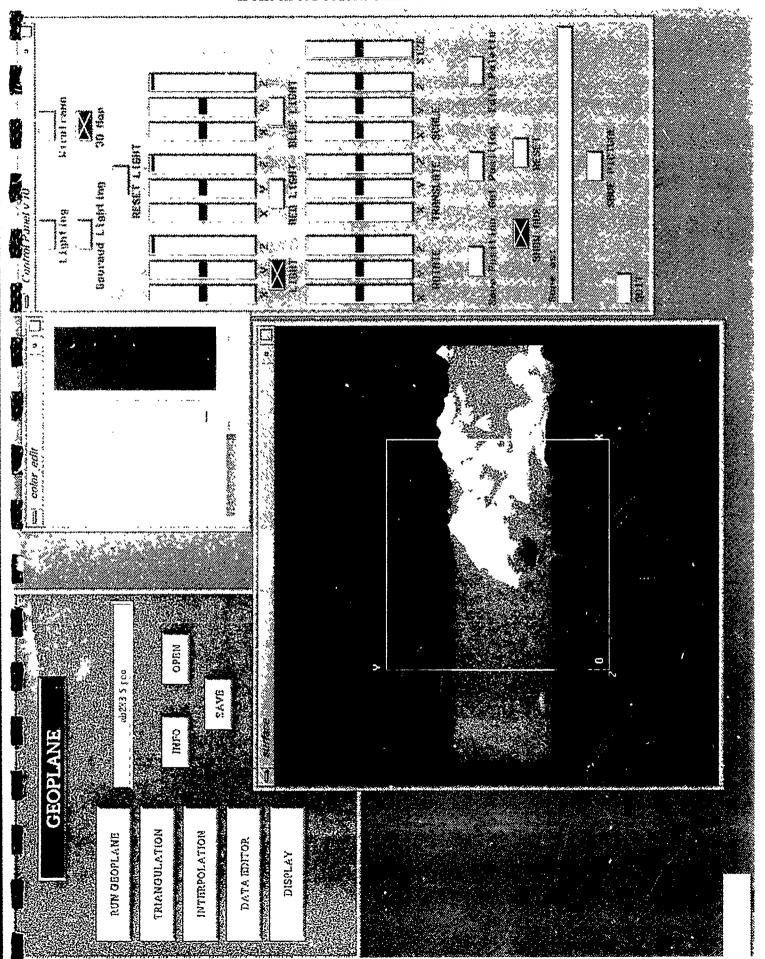
Last, but not least, we describe some of the features associated with the menudriven graphics system of GEOFORM. In the GEOPLANE panel, we have a button in which the file name to be loaded is inserted. Then, triangulation takes place upon clicking on the triangulation button. After the determination of missing points takes place, the interpolation button gets clicked. Then the data editor is triggered and the display provides the surface. The button labeled 'option' allows either normalization, smoothing by killing peaks, or a logarithmic scale contraction.

Another panel, the control panel, allows changes of light intensities, changes of colors, changes of individual rotation angles, and allows saving of files under the button 'Save Picture'. The color editor selects the bit of the graphics involved and allows the insertion of shading under the control panel instructions. These panels, as well as their sub-panels provide complete graphics control of the surface to be displayed either as a wire mesh or as a shaded solid surface.

The remarkable flexibility of displaying results is best illustrated in the hydrodynamic pictures provided below. In Figures 12-15, we apply GEOFORM to the visualization of Came fronts in turbulent flows. In Figures 16-20, we apply GEOFORM to the visualization of random of multi-frequency Rayleigh-Taylor instabilities occurring at density interfaces.

In conclusion, we have developed new algorithms for data preprocessing and organization, triangulation and interpolation. Numerous tests verify the efficiency and numerical stability of these new algorithms. In particular, the surfaces are glued together from small elements, depending on a finite number of neighboring points, but smoothly connected to each other. A listing of the GEOFORM family of codes is given in the Appendix.

Figure 12: Propagation of flame front in turbulent channel flow



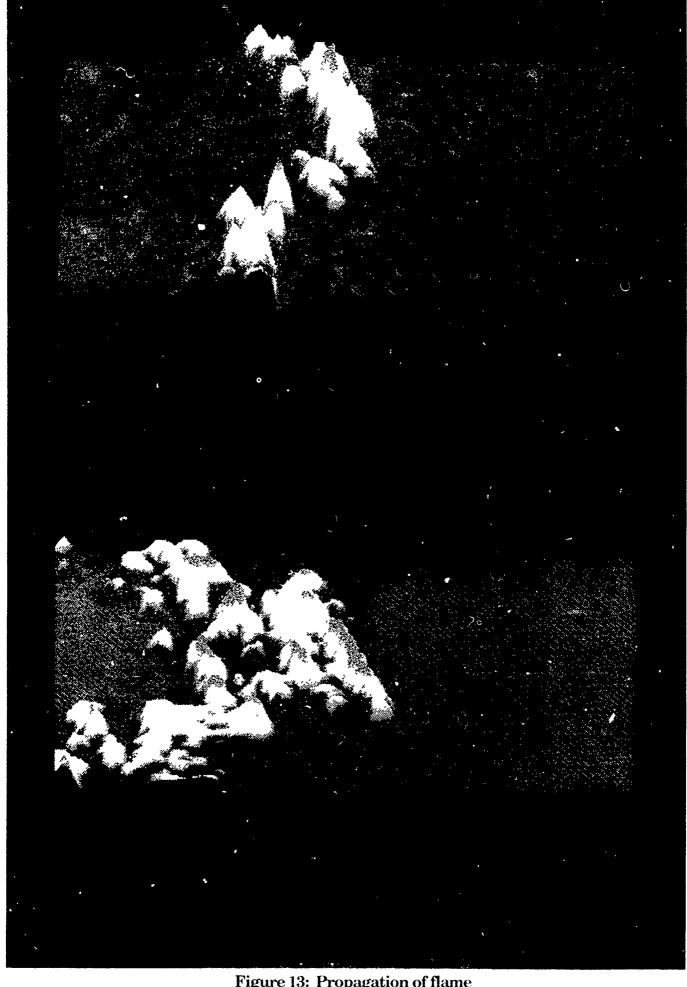
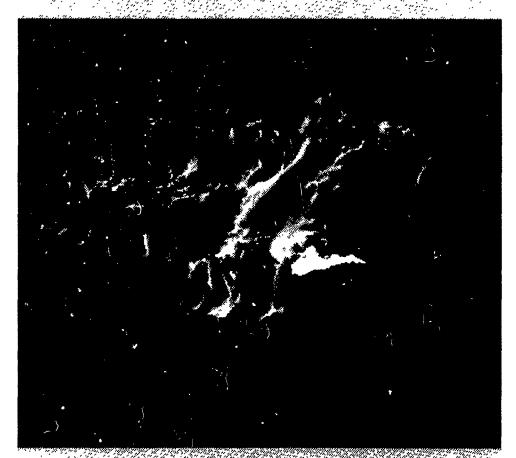
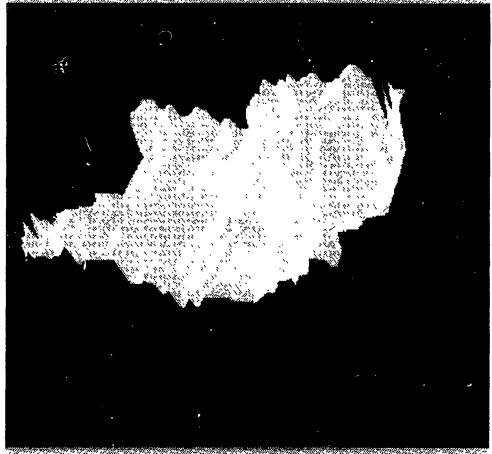


Figure 13: Propagation of flame front (late time)

RNG-LES: FLAME PROPAGATION WITH HEAT RELEASE



Flame Front



Maximum Temperature Front

Figure 14: GEOFORM view of flame obtained using RNG-LES simulation

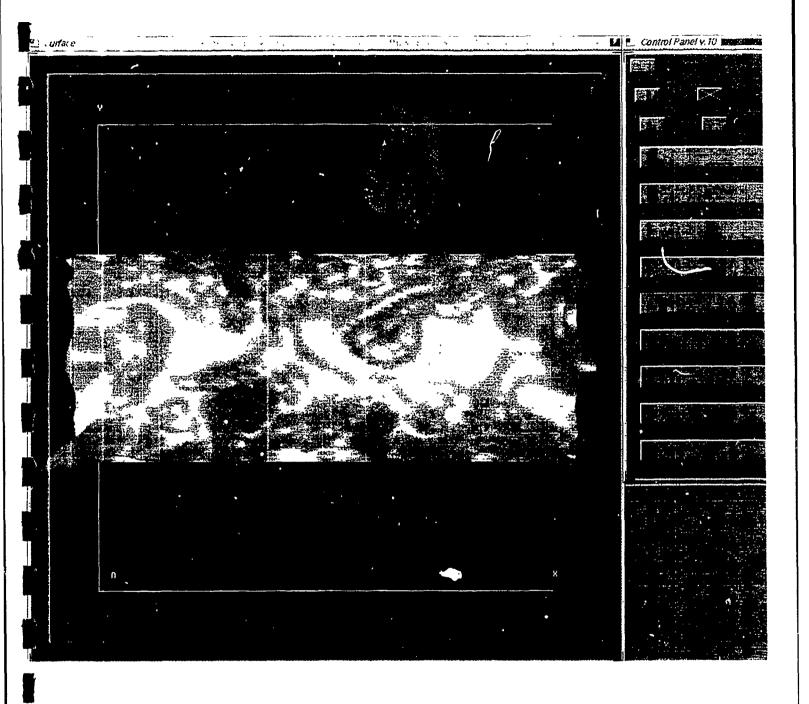


Figure 15: Head-on GE-DFORM view of flame in channel

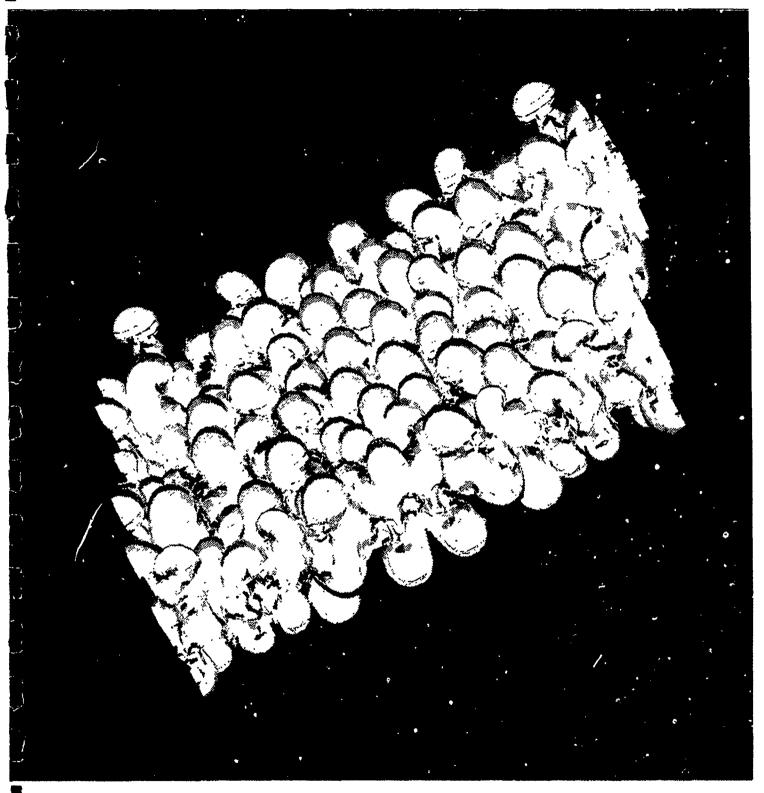


Figure 16: Three-dimensional view of random Rayleigh-Taylor instability

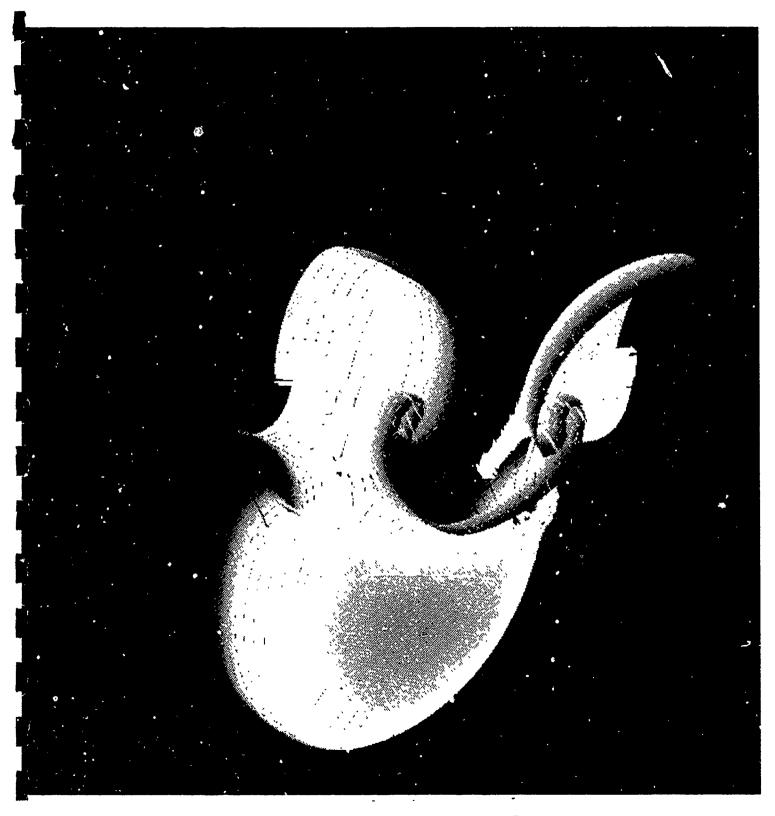


Figure 18: Three-dimensional single frequency Rayleigh-Taylor instability

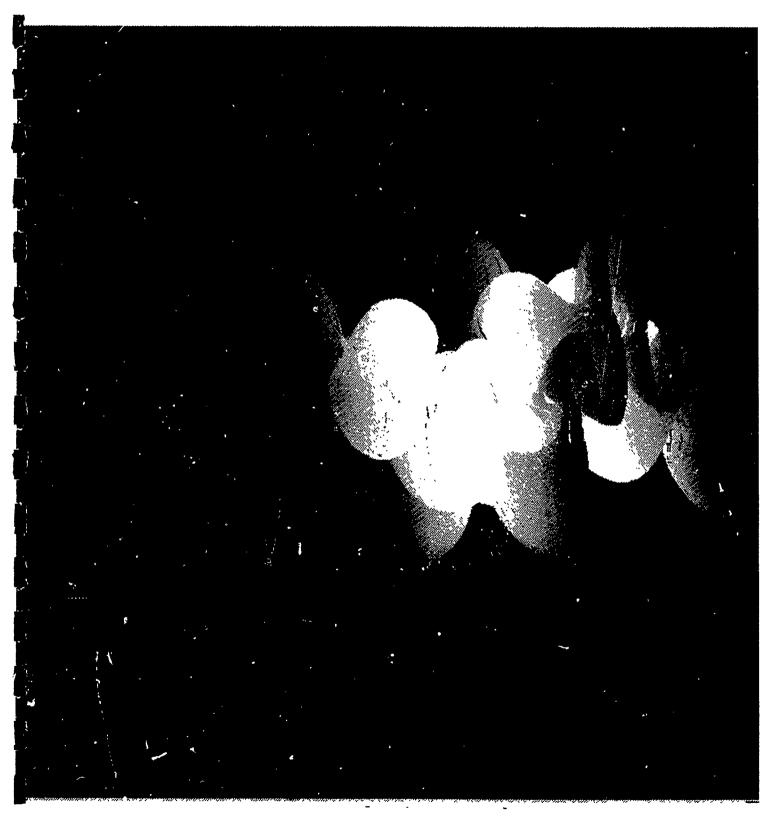


Figure 19: Early time 3D twofrequency Rayleigh-Taylor instability

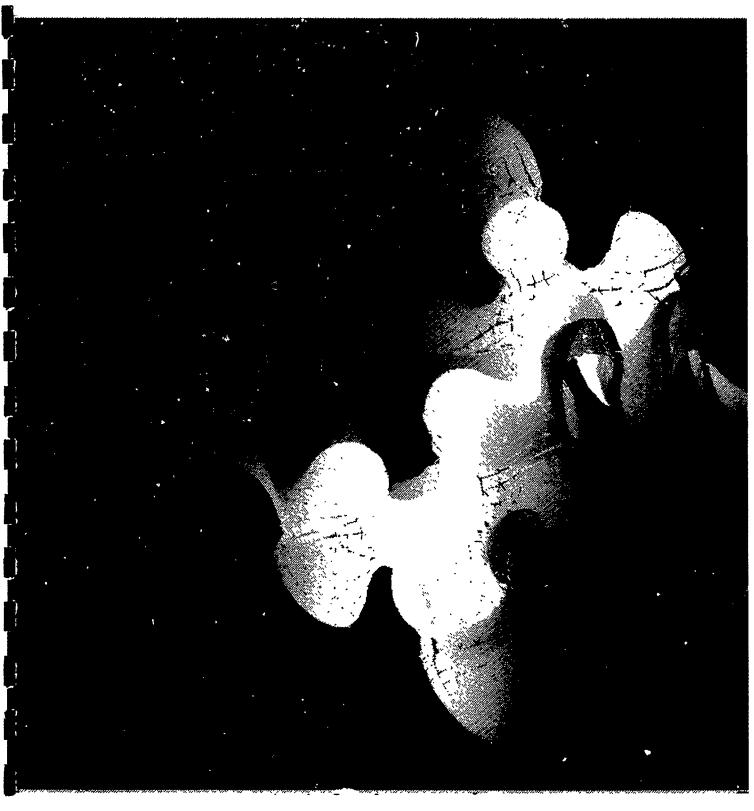


Figure 20: Late time 3D twofrequency Rayleigh-Taylor instability

ctext.c

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while (fgets(strl,1n0,fp)!= NULL)
strcpy(str[i], strl);
                                                                                                                                                                                 float backvec2[]=[0.0,0.0,0.8];
float textvec2[]=[1.0,1.0,0.0];
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switch (qread(&val)) {
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                float sizel, size?;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        char str(100)(100);
                                                                                                                                                                                                                                                                                                                                                                                                     Int 1,k;
fp = fopen(text,"r");
k = 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gld - winopen(text);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qdevice (RIGHTMOUSE);
#include "fmclient.n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           If (val ==1) |
mode = EXIT;
                                                                                                                                                                                                                                                                                                                                                                   float sizel, size2;
                                                                                                                                                                                                                                                                                                                                                                                    FILE *fp, *fopen();
                #Include<device.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        foreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      while (mode) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              winset (gld);
                                                                                                                                                                                                                                                                                             char text[];
                                                                                                                            #define JOB 1 #define EXIT 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   short val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         mode - JOB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gconf1g();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int dev;
                                                                                                                                                                                                                                        long gld;
                                                                                                                                                                                                                                                                            try(text)
```

for (k=beq+1;k<1;k , , x= 100; y=700-(k-1)*stepy; cmov2(x,y); [mprstr(str(k));]</pre>

~

ctext.c

```
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              '/* Something in the queue? Handle it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (*scan->ufunc) (scan->arg);
                                                                                                                                                                                                                                                      new_guy->flag = flag;
new_guy->ufunc = ufunc;
new_guy->arg = arg;
new_guy->next = update_list;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (find_update() -- 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               static int initialized - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qdev1ce (INPUTCHANGE);
      function, hogging the cpu,
                                                                     add_update(flag, ufunc, arg)
int *flag;
void (*ufunc) (void *);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  updated - 0;
                                                                                                                                                                                                                                                                                                                                                 update_list - new_guy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (initialized == 0)
                                                                                                                                                                                        new_guy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Initialized - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               updated - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f (*scan->flag)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       find_event();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   find_event();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             scan;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return(updated);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    * appears there.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f (dtest())
                                                                                                                                                                                update_p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               find_update()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update p
                                                                                                                                       char *arg;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          event ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            걸

    Specify a function to be called if there is nothing in the queue
    and (*flag) is non-zero. If no update function is active, or
    (*flag) is 0, then event() will block on a gread. If there is an

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               • This routine adds an event to be checked for to the event queue.
• window should be the wid of the window to respond in, or ANY if
• this event applies to all windows. device is the device, and state
• is the device's value (e.g. ANY, UP, DOWN, the window id (for
• REDRAW), etc). Func is the function that will be called, with
• arguments 'arg' and the device's value.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . NOTE: the device must be queued for it to be found by the event()
event.c
A more rational way to handle reading the event queue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           new_guy = (event_p)malloc(sizeof(event_t));
new_guy->window = window;
new_guy->device = device;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * routine -- add_event DOES NOT qdevice (device)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       add_event (window, device, state, func, arg)
int_window, device, state;
Joid (*func) (void *, int);
                                            Written by Wade Olsen
                                                                                                                                                                                                                                                                             window, device, state;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - event_list;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      event_list;
update_list;
                                                                                                                                                                                                                                                                                              vold (*func) (vold *, int);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - state;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - func;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - arg;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                void (*ufunc) (void *);
char *arg;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               struct update_s *next;
} update_t, *update_p;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    new_guy->arg = arg;
new_guy->next = ever
event_list = new_guy;
                                                                                                                                                                                                                                                                                                                                                                                                                  typedef struct update_s
                                                                                                                                                                                                               typedef struct event_s
                                                                                                                                                                                                                                                                                                                                                                  | event_t, 'event_p;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         event_p new_guy;
                                                                                                                                       finclude <device.h>
                                                                                                                                                                                                                                                                                                                                             struct event_s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            new_guy->state
                                                                                                                #include <stdio.h>
                                                                                                                                                          #include "event.h"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 new_guy->func
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        static event_p
static update_p
                                                                                                                                                                                                                                                                                                                         char .arg;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           int ·flag;
                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plov
```

```
* Or, if there's no update function, wait for something to appear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for (scan = update_list; scan && updated == 0; scan = scan->next)
* active update function, event() will continuously call the update
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   add_event(ANY, INPUTCHANGE, ANY, event_irputchange, NULL);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \mbox{ * The main Event. } Call this repeatedly to automagically handle \mbox{ * reading the queue, and calling your functions to handle what
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     void find_event (void), event_inputchange (void);
int find_update (void);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         new_guy = (update_p)mailoc(sizeof(update_t));
```

```
event.c

int context, state, device;

void
event_inputchange()
{
    context = winget();
}

void
find event()
event_p scan;

for (scan = event_list; scan; scan = scan->window))

if ( ((scan->window == ANY) || (context == scan->window))

if ( ((scan->window == ANY) || (state == scan->device))

if ( ((scan->window == ANY) || (state == scan->device))

if ( ((scan->window))

if ( ((scan->func) (scan->arg, state);
}
```

```
for (1 = 0 ; 1 < npoints ; 1++) {
    scanf("%f %f %f\n", &(V[1][0]), &(V[1][1]), &(V[1][2]))</pre>
                                                                                                                                                                                                                                                                                                                                                                                                            fprintf(stderr, "% points, % polys\n", npoints, npolys)
*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(1 = 0.1
for(1 = 0.1
for (ku = 0; ku < 3; ku++) {
    mins(ku) = min(mins(ku), V(i)(ku))
    maxs(ku) = max(maxs(ku), V(i)(ku))
</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max = max(maxs[0]-mins[0], maxs[1]-mins[1])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          p(!) = MakePolygon(3) ;
for (j = 0 ; j < 3 ; j++) {
    scanf("%d", &index(j)) ;
    P(!)->s(j) = index(j) = 1 ;
    P(!)->p(j) = V + (index(j))
                       npoints, npolys;
mins = {1000000, 1000000, 1000000};
maxs = {-1000000, -1000000, -1000000}
                                                                                                                                                                                                                                                                            int i, j, ku,nverts, index{3}, nsides
Vec tmbl.rmm? ·
                                                                                                                                                                                                                                                                                                                                                       scanf ("*d *d\n", & npolys, & npoints)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   for (j = 0; j < 3; j++) (
mins(j) = lelo;
maxs(j] = -lelo;
                                                                                                                      (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max = max (Max, maxs(2)-mins(2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for (1 = 0; 1 < npoints; i++) (
V[1][0] = V[1][0] = shiftx;
V[1][1] = V[1][1] = shifty;
V[1][2] = V[1][2] = shiftz;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     scal-ncol/(maxs[2]-mins[2]);
shiftx = 0.5*(maxs[0]+mins[0]);
shifty = 0.5*(maxs[1]+mins[1]);
shiftz = 0.5*(maxs[2]+mins[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (1 - 0; 1 < npolys; 1++)
                                                                                                                                                                                                                      float shiftx , shifty, shiftz
                                                                                                                      (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        maxs(2) = maxs(2)-shiftz;
mins(2) = mins(2)-shiftz;
                                                                                                                      . .
                                                                             VI[SIZE] ,V2[SIZE][3];
                                                                                                                   fdefine min(a, b) ((a) < (b)
fdefine max(a, b) ((a) > (b)
     N(SIZE),N1(SIZE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*Lala: I changed here */
                                                                                                                                                                                float Max , scal;
                                                                                                                                                                                                                                      ReadObject ()
                                                                                 float
                                                                                                                                                                                                                                                                                                                                                                                             •
                                                                                                                                                                                                                                    /*size of matrix in the stack*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  **) calloc(nsides, sizeof(Vec *));
* ) malloc(3* sizeof(int ));
                                                                                                                                                                                                                                                      /*size of sun file*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        p = (Polygon *) malloc (sizeof(Polygon))
                                                                                                                                                                                                                                                                                                                                                                                      blackvec[] = [0.0, 0.0, 0.0];
redvec[] = [1.0, 0.0, 0.0];
whitevec[] = [1.0, 1.0, 1.0];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  - 10.0, 0.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [loat OldMatrix[16], NewMatrix[16];
                                                                                                                                                                                                                                                                                                                                                                                                                                                 yelvec{} - {1.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    color_palette(maxcol)(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -> p_nsides = nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 float wx2,wy2,wz2,scal_par;
typedef float Vec(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            p_nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Object Vobj, sphere, Vobjl;
                finclude 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a ..
                                                                                                                                                                                                                                                                                                            50000
                                                                                                                                                                                                             -> p = (Vec
-> s = (int
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Polygon • p ;
                                                                                                                                                                                                                                                                        3,5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'olygon * P(SIZE);
#include <std10,h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MakePolygon (nsides)
                                                                                                                                                                                                                                                                                                                                                                        backvec[]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              negflag ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eypedef struct {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return p
                                                                                                                                                                                                                                                                                        ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     V(S12E)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    float idmat[]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ביב
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Polygon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>a</u> a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Polygon .
                                                                                                                                                                                                                                                                                       define
define
                                                                                                                                                                                                                                                                      •define
                                                                                                                                                                                                                                                                                                                                                                                                          float
float
float
                                                                                                                                                                                                                                                                                                                                                                      float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
```

:

```
- (float) sqrt(a[0] * a[0] + a[1] * a[1] + a[2] * a[2])
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    char string1(5), string2(5), string3(5), string4(5);
                                                                                                                                                                                                                                                                                                                                                                                                    float shinymaterial[] = { SPECULAR, 1.0, 0.2, 0.8, EMISSION, 0.8,0.0, 0.8,0.0, DIFFUSE, 0.8, 0.0, 0.0, AMBIENT, 0.2, 0.0, 0.0, SHININESS, 3.0,
                                                                                                                       ٠.
                                                                                              c[0] = a[1] * b[2] - b[1] * a[2];
c[1] = - {a[0] * b[2] - b[0] * a[2])
c[2] = a[0] * b[1] - b[0] * a[1];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LMNULL ];
- { LCOLOR, 1.0, 1.0, 1.0, POSITION, 0.0, 0.0, 1.0, 0.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - ( LCOLOR,0.0, 0.0,1.0,
POSITION, 0.0, 0.0, 1.0,0.0,
IMNULL );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - { LCOLOR,1.0, 0.0,0.0,
POSITION, 0.0, 0.0, 1.0,0.0,
LMNULL };
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     float kvadrat1[] = {-0.5,-0.5,-0.5};
float kvadrat2[] = {-0.5,0.5,-0.5};
float kvadrat3[] = {0.5,0.5,-0.5};
float kvadrat4[] = {0.5,0.5,-0.5};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sprintf(stringl,"%s","X");
sprintf(string2,"%s","Y");
sprintf(string3,"%s","2");
sprintf(string4,"%s","O");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         THNOTE 1 :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cmov (-0.47, -0.47, -0.47);
charstr (string4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cmov(0.50,-0.47,-0.50);
charstr(string1);
cmov(-0.50,0.53,-0.50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                charstr(string2);
cmov(-0.53,-0.53,0.53);
charstr(string3);
                                                                                                                                                                                                                                                                                                          a[0] /- 1;
a[1] /- 1;
a[2] /- 1;
                                             ົວ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c3f (whitevec);
                                                                                                                                                                                                                                                      float 1
                                          VecCross(a, b,
                                                                                                                                                                                             VecNormalize(a)
                                                             Veca, b, c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     float sun][]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                float sun2()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            float sun3()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drawbox ()
                                                                                                                                                                                                                  Vec a ;
                                                                                                                                         .. .. ..
                                                                                                                                  - #f\n", mins[0], maxs[0])
- #f\n", mins[1], maxs[1])
- #f\n", mins[2], maxs[2])
                                                                                                                                                                                                                                                                                                                               .. ..
                                                                                                                                                                                                                                                                                                                                                                                                                    \begin{array}{lll} 1f(N[1][0] < 0.)N[1][0] = -N[1][0];\\ 1f(N[1][1] < 0.)N[1][1] = -N[1][1];\\ 1f(N[1][2] < 0.)N[1][2] = -N[1][2];\\ \end{array}
V2[1][j] - V[index[j] -1][2];
                                                                                                                                                                                                                                                                                                   for (1 = 0 ; 1 < npolys ; 1++) {
    VecSub(P[1]->p[0], P[1]->p[1], tmp1)
    VecSub(P[1]->p[2], P[1]->p[1], tmp2)
    VecCross(tmp1, tmp2, N[1]);
    VecNormalize(N[1]);
                                   V1[1] = V2[1][0] + V2[1][1] +V2[1][2];
V1[1] = V1[1]/3.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .. ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -- N(1)(0);
N(1)(1) -- N(1)(1)
N(1)(2) -- N(1)(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for (1 = 0; 1 < npolys; 1++) (N1[1] (0) = 0.0; N1[1] (1) = 0.0; N1[1] (2) = 0.0; N1[1] (2) = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for (1 = 0; 1 < npolys; 1++) (
for (1 = 0; 4 < 3;)++) (
N1 P(11)->s(1) 1(0)+- N(1)[0];
N1 P(11)->s(1) 1(1)+- N(1)[1);
N1 P(11)->s(1) 1(2)+- N(1)[2];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or (1 = 0; 1 < npolys; 1++)
VecNormalize(N1[1]);
                                                                                                                                  fprintf(stderr, "bbx: %f
fprintf(stderr, "bby: %f
fprintf(stderr, "bbz: %f
*/
                                                                                                                                                                                                             /*mins(2)=0;*/
                                                                                                                                                                                                                                                                                                                                                                                                    if (negflag) (
                                                                                                                                                                                                                                                  scal_par = Max/2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - b(0)
- b(1)
- b(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 - a(0);
- a(1);
- a(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N(1)(0) -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a a [1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   el se (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ច
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Veca, b, c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a(0)
a(1)
a(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c [1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /ecSub(a, b,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /ecNegate (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Vec a ;
```

```
fscanf(fp,"f %f %f", sshinymaterial[1], sshinymaterial[2], sshinymaterial[3]);
fscanf(fp,"%f %f %f", sshinymaterial[5], sshinymaterial[7]);
fscanf(fp,"%f %f %f", sshinymaterial[9], sshinymaterial[10], sshinymaterial[11]);
fscanf(fp,"%f %f %f", sshinymaterial[13], sshinymaterial[14], sshinymaterial[11])
                                                                                                                                                                                                                                                                                                                                                                     if(fp '* NULL) {
    fscanf(fp, "*d", incol);
    for(j = 0; jcncol; j++)
    for(j = 0; jcncol; j++)
    fscanf(fp, "*f *f *f", icolor_palette[j](0], icolor_palette[j][l]),
    fscanf(fp, "*f *f *f");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fscanf(fp,"%f %f %f", esunl(1), esunl(2), esunl(3));
lmdef(DEFMATERIAL, 1, 19, shinymaterial);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else (ncol = maxcol; init_palette();)
                                              for(j = (int)(ncol/4);j>=0;j==) {
  color_palette(j)(l) = 1.0;
                                                                                                                                                                                                                                                                                                                                          fp = fopen("color_palette", "r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fp = fopen("pnl_position","w");
for(1 = 0;1< MATRIXSIZE;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fprintf(fp,"%f ",OldMatrix(!));
for(1 = 0;1< LIGHTINDEX;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fprintf(fp,"%f ", sunl(il);
for(l = 0;i< LIGHTINDEx;i++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fprint(fp, "%f", sun2(1));
for(1 = 0;1< LIGHTINDEX;1++)
fprint(fp, "%f", sun3(1);</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 scal=ncol/(maxs[2]-mins[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lmbind(MATERIAL, 1);
lmdef(DEFLIGHT,1, 10, sun1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - fopen("lighting","r");
                                                                                                                                                                                                                                                                                                                  FILE 'fp, 'fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Imbind (LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  save_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (tb :-NOLL)
                                                                                                                                                                                                                                            get_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             get_surface()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fclose (fp);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (close(fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fclose(fp);
ന
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           color_palette[j][1] = 1 - dx1*(j -(int) ( 3*ncol/4));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for(j = ncol/2;j>= (int) (ncol/4);j-=) {
color_palette[j][1] =1.0 = dxl*(j-ncol/4);
/* print[("%f %d %d \n", color_palette[j][1],1,j);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for() =(int) (ncol); j>= (int)(3*ncol/4);j==)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for(3 = (lnt) (3*ncol/4); j>-ncol/2; j--) (
    color_palette(j)(1) = dx1*(j - (lnt) (ncol/2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for() = ncol; 3>* (int) (3*ncol/4)+1; 3--) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for () - (int) incol/4); j>- 0; j--) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             color_palette()|[1] = dxl*);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     color_palette())(1) = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  color_palette[]][1] = 1.0;
                                                                                                                                                                                                                                                                     translate (0.0,0.0,1.0);
bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         color_palette[]][]] =0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for () = 0; jencol; j++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(1 = 0;1<3;1++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rotate(-900,'y');
bgnclosedline();
v3f(kvadratl);
                                                                                bgnclosedline();
                                                                                                                                                                                                      endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                      endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v3f (kvadrat4);
endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for (1 = 0;1<3;1++)
                                                                                                           v3f(kvadrat1);
                                                                                                                               v3f (kvadrat2);
                                                                                                                                                       v3f (kvadrat3);
                                                                                                                                                                                v3f (kvadrat4);
                                                                                                                                                                                                                                                                                                                           v3f(kvadratl);
                                                                                                                                                                                                                                                                                                                                                   v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                          v3f(kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                v3f (kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v3f (kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v3f (kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pushmatrix();
                                                                                                                                                                                                                                                        pushmatrix();
                                                          pushmatrix();
      form disp.c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(1 -- 0) <
                                                                                                                                                                                                                               popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15(1 -- 1) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                 popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f(1 -- 2) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Init_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dxl 4./ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    float dxl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Int 1, 1;
```

form disp.c

```
if(ob) == yrot )rotate({short)GETVAL(yrot) ,'y');
if(ob) == zrot )rotate({short)GETVAL(zrot) ,'z');
if(ob) == xsc || obj == ysc || obj == zsc) scale(GETVAL(xsc),GETVAL(ysc),GETVAL(zsc));
if(obj == size) scale(GETVAL(size),GETVAL(size));
if(obj == shix || obj == shiy || obj == shiz) translate(GETVAL(shix),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -- xrot )rotate((short)GETVAL(xrot),'x');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void Change_Stack(FL_OBJECT *obj,long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              loadmatrix(ldmat);
ortho(-2.0,2.0,-2.0,2.0,-2.0,2.0);
                        fl set_slider_bounds(shiy,-1.0 *Max,Max);
fl set_slider_bounds(shiz,-1.0 *Max,Max);
fl set_slider_bounds(xsc,0.1, 10);
fl set_slider_bounds(ysc,0.1, 10);
fl set_slider_bounds(zsc,0.1, 10);
fl set_slider_bounds(size,0.1, 10);
fl set_slider_bounds(size,0.5, 5.0);
set_slider_bounds(shix,-1.0 'Max,Max);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #define GETVAL(x) fl_get_slider_value(x)
                                                                                                                                                                                                                                                                                                                    fl set slider value (xrot, 0.0);
fl set slider value (yrot, 0.0);
fl set slider value (srot, 0.0);
fl set slider value (shix, 0.0);
fl set slider value (xsc, 1.0);
fl set slider value (xsc, 1.0);
fl set slider value (ssc, 1.0);
fl set slider value (ssc, 1.0);
fl set slider value (ssc, 1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       printf("I got in Change_Stack\n");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lmdef(DEFLIGHT, 1, 10, sunl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Imdef (DEFLIGHT, 2, 10, sun2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GETVAL(shly), GETVAL(shlz));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     makeobj(Vobjl = genobj() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sun1[6] = GETVAL(ylight1);
sun1[7] = GETVAL(zlight1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sun3[5] = GETVAL(xlight3);
sun3[6] = GETVAL(ylight3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sun2(5) - GETVAL(x11ght2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sunl[5] - GETVAL(xlightl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sun2(6) - GETVAL(yllght2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sun2[7] - GETVAL(zlight2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          multmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     getmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1mbind(LiGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lmbind(LiGHTl, 2);
                                                                                                                                                                                                                                                                   Set_Slider_Values()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             closeobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  callobj(Vobj1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MakeLight1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MakeVob 1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 f (ob)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fscanf(fp,*%f ", 6(sun2{i|}));
for(1 = 0;1< LIGHTINDEx;1++)
fscanf(fp,*%f ", 6(sun3{i|});
fscanf(fp,*%f %f %f (sight1->val), 6(light2->val), 6(light3->val));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;else lmbind(LIGHTO,0);
;else lmbind(LIGHT1,0);
;else lmbind(LIGHT2,0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         l_set_silder_bounds(xrot,-1800,1800);
l_set_silder_bounds(yrot,-1800,1800);
l_set_silder_bounds(zrot,-1800,1800);
                                                                                                                                                                                                                                                                                                                                                                  fscanf(fp, "%f ", & (OldMatrix(1]));
for(1 = 0;1< LIGHTINDEX;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           igid - winopen("surface")
                                                                                                                                                                                                                                                                                                                                    for (1 = 0; 1< MATRIXSI2E; 1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [ (!!ght!->val) !mbind (LIGHTO, !)
! (!!ght2->val) !mbind (LIGHT1, 2)
! (!!ght3->val) !mbind (LIGHT2, 3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lsetdepth(0, 0x7FFFFF);
                                                                                                                                                                                                                                               FILE * fp, * fopen ();

fp = fopen ("pnl_position", "r");

if (fp : * NULL) [
                                                                                                                                                                                                                                                                                                                                                                                                                           fscanf(fp, "%f ", 6 (sunl(1)));
                                                                                                                                                                                                                                                                                                                                                                                                                                                         for(1 - 0;1< LIGHTINDEX;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Imdef(DEFLIGHT,1, 10, sun1);
Imdef(DEFLIGHT,2, 10, sun2);
Imdef(DEFLIGHT,3, 10, sun3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mmode (MVIEWING) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Set_Slider_Bounds()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         zbuffer (TRUE) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (oreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oadmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  keepaspect(1, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gconfig();
                                                                                                                                                     'get_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          init_mywin()
i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (close (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tong lgld;
```

```
if(CurOb) -= surface) n3f(N[1]) ;
if(CurObj -= smooth) n3f(N1[P[1]->s[j]) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for () = 0; ) < P(1) -> p_nsides; )++) (
                                                                                                                                                                                                                                                                                                 bgnpolygon() ;
for () = 0 ; j < P(i) -> p_nsides ; j++)
col_ind=(int) ((V2[i][[j]-mins(2])*scal);
col_ind=min(ncol-1, max(0, col_ind));
col_ind=min(ncol-1, max(0, col_ind));
col_ind[[[i]-ind][[i]]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sprintf(str,"%s%s %d %s",PATH,"mycedit",ncol,"&");
         v3f(P[1]->p[3]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vold show_cedit (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    v3f (P[1]->p[]]);
                                                                                                                                                                                                                                                                                   0; 1 < npolys; 1++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for (! * 0; 1 < npolys; 1++) [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (Curob) == surface!! Curob) == smooth)
                                                  endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                     endpolygon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pgubolygon()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c3f (yelvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                endpolygon()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE 'fp, 'fopen();
FL_OBJECT 'obj;
int 1, j;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  lmbind(MATERIAL, 1);
lmbind(LIGHTO, 1);
lmbind(LIGHTI, 2);
                                                                                                                                                       Imbind (MATERIAL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   swapbuffers()
                                                                                                                                  1f (Curob) -- map)
                                                                                                                                                                 Imbind (LIGHTI, 0);
                                                                                                                                                                                                                     ...
66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         short val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 char * str(100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lmbind(Light2, 3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lmbind(LMUDEL, 1)
                                                                                                                                                                                              lmbind(LIGHT1, 0
lmbind(LIGHT2, 0
lmbind(LMODEL, 0
                                                                                                                                                                                                                                                                                   for (1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        main(argc, argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            system(str);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 char *argv(1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int arge;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              int 1, j,col_ind;
if(obj == map || obj == model || obj == surface || obj ==
smooth ) Curobj = obj;
                                                                                                                                                                                                                                                                                                                  out_rgb = fl_get_input(obj);
sprintf(savePict,"%s%s %d %d %d %d ","scrsave ",out_rgb,xor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clf(redvec);
bgnclosedline();
for (j = 0; j < P[1] -> p_nsides; j++) (
                                                                                                                              vold save_picture(FL_OBJECT *obj,long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void make_reset (FL_OBJECT *obj , long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for (1 = 0; 1 < npolys; 1++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          void DrawObj (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (Curob) -- model)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FL_OBJECT *Curobj;
sun3{7} = GETVAL(zlight3);
Imdef(DEFLIGHT, 3, 10, sun3);
Imbind(LIGHT2, 3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          callob(Vobjl);
scale(2.0/Max,2.0/Max,2.0/Max);
getmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             scale (2.0, 2.0, 2.0);
                                                                                                                                                                       char savePict[50], *out_rgb;
long xor, yor, xsize, ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       reshapeviewport ();
                                                                                                                                                                                                                                                                                                                                                             xor+xs1ze, yor, yor+ys1ze);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1f (ob) -- box) {
                                                                                                                                                                                                                                                                            get size (6xsize, 6ysize);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              callobj(Vobj1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mbind (MATERIAL, 0);
mbind (LIGHTO, 0);
mbind (LIGHT1, 0);
mbind (LIGHT2, 0);
mbind (LIGHT2, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              get_surface();
winset(igid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pushmatrix();
                                                                                                                                                                                                                                                          getorigin (&xor, &yor);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            c3f (backvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MakeLightl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MakeVobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drawbox();
                                                                                                                                                                                                                                                                                                                                                                                                      system(savePict);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     zclear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clear ();
                                                                                                                                                                                                                                     winset (1gid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         static
```

9

```
form disp.c
```

```
form_geo.c
```

finclude <forms.h>

(include<stdio.h>

```
menu2 = defpup("ADD POINTS%t %F|2"size of data %x2| 4"size of data %x4| 8 "size of data %
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                restore_cursor();
fl_show_message("DATA IS PROCESSED","PRESS SAVE BUTTON ","TO SAVE OUTPUT IN THE FI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           If((fpl = fopen("triang","r")) == NULL) {
fl_show_message("YOU HAVE TO RUN","TRIANGULATION" ,"FIRST");
fclose(fpl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    start [[Illename, fnorm, fwlog, fpeak);
trian [(fhardcopy);
re_cursor();
[I_show_message("TRIANGULATION IS DONE", "");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            restore_cursor();
[1_show_message("INTERPOLATION","IS ","DONE");
                                                                                                                                                                                                                                                                                                          max_size = dopup(menu2);
change_cursor();
start_(filename, fnorm, fwloq, fpeak);
trian_(thardcopy);
if (max_size> 1) {
  add_(fmax_size);
  int_(fmax_size);
}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          start (filename, &norm, &wlog, &peak);
show_(text, &hardcopy);
                                                                                                                                                                                                         vold choice (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      change_cursor();
add_(6max_size);
int_(6max_size);
if(hardcopy)system(hardstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 f (hardcopy) system(hardstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f (hardcopy) system(hardstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  printf("%s\n", geomview);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          max_size = dopup(menu2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (arg -- DATA_EDITOR) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f(arg == TRIANGULATION)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (arg == INTERPOLATION)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   change_cursor();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  change_cursor();
system(geomview);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (arg -- DISPLAY) (
                                                                                                                              x8", get_max_size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                restore_cursor();
                                                                                                                                                                                                                                                            If (arg -- RUN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else
                                                  myMenus ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 restore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LE");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       vold show_info(FL_OBJECT *obj, long arg)(
{l_show_message("GEOFORM Version 2.0 ", "Cambridge Hydrodynamics Inc.","");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   char filename(50), runinfo(50),trianginfo(50),showinfo(50);
char leadersur(50), surfaceinfo(50),intinfo(50),geomview(50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sprintf(surfaceinfo, "%s%s", PATH, "surface.info");
sprintf(geomvlew, "%s%s%s", PATH, "geomvlew", PLACE);
sprintf(text, "%s%s", PATH, "text!");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sprint(trlanginfo, "*s*s", PATH, "trlang.info");
sprint(showinfo, "*s*s", PATH, "show.info");
sprint(intinfo, "*s*s", PATH, "int.info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sprintf (leadersur, "tsts", PATH, "leader.sur");
sprintf (cleanstr, "tsts", PATH, "clean");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sprintf (runinfo, "$5%s", PATH, "run. info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fp2 = fopen("leader","w");
while(fgets(stroka,100,fp1)!=NULL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      char text[50] ,cleanstr(50];
FILE *fpl, *fp2, *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fprintf(fp2,"%s", stroka);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (pl -fopen (leadersur, "r");
                               ## finclude "option form.h"
## finclude cstring.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int norm, peak, hardcopy;
                                                                                                                                                                                                                          define TRIANGULATION 2 define INTERPOLATION 3
finclude "geoplane.h"
                                                                                                                                                                                                                                                                             #define DATA_EDITOR #define DISPLAY 5
                                                                                                               finclude "sandwatch"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   system(cleanstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            int get_max_size();
char stroka[100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           char hardstrilool;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fclose(fpl);
fclose(fp2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hardcopy - 0;
                                                                                                                                                                                                    define RUN 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                wlog = -1;
peak = -1;
norm = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         int max_size;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          initialize()(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     float wlog;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int menu2;
```

```
fname = f1 show file selector("INPUT FILE NAME","","","");
If(fname != NULL t& fname{0} != '\0')
sprintf(filename,"\s",fname);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sprintf(hardstr,"4s%s%",
"launch -h \"mv hardtmp\" -m \"Save hardcopy as\"
filename,".mongo\"");
1f(fname -- NULL || fname(0) -- '\0') return;
                                                                                                                                                                         while (fgets (stroka, 100, fpl) ' "NULL) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             void get_out ( FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                 strcpy(fnameob)->label, filename);
                                                                                                                                                                                            fprintf (fp2, "%s", stroka);
                                                                                                                                                                                                                                                                                                                     f1_redraw_object (fnameobj);
                                                                                                                         fp2 = fopen("leader","w");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            defcursor(1, sandwatch_bits);
curorigin(1, 8, 8);
setcursor(1, 0, 0);
                                                                                              fpl=fopen(leadersur,"r");
                                                strcpy (filename, fname);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     strcpy(filename,argv[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fl_hide_form(option_form);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      set cursor (0,0,0);
                                                                                                                                                                                                                                                fclose (fpl);
                                                                                                                                                                                                                                                                       fclose(fp2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        curstype (C16X1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        restore_cursor()
                                                                                                                                                                                                                                                                                                                                                                                                 make_hardcopy()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       change_cursor()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      main (argc, argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FL OBJECT • obj;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         !f(argc < 2) {</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       char *argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              char *fname;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int arge;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hardcopy
                                                                                    char locstr[100];
sprintf(locstr,"%s%s%s","launch -h \"cp trlang\" -m \"Save file as\" -c \\"',
filename,".tri\\"');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              har stroka(100),*fname;
ystem(cleans:r);
name = fl_show_flle_selector("INPUT FILE NAME","","","");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Deak - fl_show_question("ERRORS IN THE FILE?","","");
                                                                                                                                                                                                                                                                                                                                     (1_show_form(option_form,FL_PLACE_SIZE, FALSE, NULL);
                                         vold save_trlang(FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           void normalize (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     old show_files(FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                   vold make_quit (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              vold kill_peak(FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                       old get_menu(FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vold logar (FL_OBJECT *obj, long arg)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        old reset (FL_OBJECT 'obj, long arg
                                                                                                                                                                system (locstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         jet_max_size(n)
.nt_n;
                                                                                                                                                                                                                                                                                                                                                                                                               int quit - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ardcopy - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -ax_size - n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *10g = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oeak - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      quit - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             norm - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       wlog - 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30 - mao:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           eturn n;
```

```
-c \"",
```

```
form_geo.c
```

```
initialize();
create_the_forms();
create_the_options();
strcpy(fnameobj->label, filename);
fl_edraw_object(fnameobj);
fl_show_form(GEOPLANE,FL_PLACE_SIZE,TRUE, NULL);
myMenus();
while (obj != exit_but){
   obj = fl_do_forms();
}
fl_hide_form(GEOPLANE);
system(cleanstr);
}
```

```
#include "fmclient.h"
#include "gl.h"
#include caring.h>
#include cari
```

Н

```
while (fgets (stroka, 100, fpl)! -NULL)
                                                                                                                                                                                                                                                                                                                                              sscanf(stroka,"td", max_size);
fprintf(fp2,"ts", stroka);
                                                                                                                                                                                                                                                                          fprintf(fp2,"%d\n",max_size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ortho (0.0,1.0,0.0,1.0,-1.0,1.0);
                                                                               max_size = ato!(argv(2));
fpl=fopen(leadersur,"r");
fp2 = fopen("leader","w");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tie (RIGHTMOUSE, MOUSEX, MOUSEY);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fprint((fp2,"%s", stroka);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |qid = winopen("geoplane");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           strcpy(filename,argv[l]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getorigin(&xo, &yo);
getsize(&xsize, &ysize);
                                                                                                                                                                                                                        1f (max_size != 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qdevice (RIGHTMOUSE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  while (!exitmode) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           while (!qtest()) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           system("clean");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prefsize (700, 700);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                winclose (iqid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          processinput();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fclose (fpl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fclose (fp2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            concave (TRUE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                keepaspect (1,1);
                                                                                                                                                                                                      1f(1 -- 20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   initialise();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       foreground (0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            c3f (backvec1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exitmode = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drawob; ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Initialise()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RG3mode ():
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gconf1g();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            myMenus ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                 else(
                                                                                                                                                                                                                                                                                                                            else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lob = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print("usage: geoplane (name of file) [number of points after interpolation]\n");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  har filename[30],runinfo[50],trianginfo[50],showinfo[50],leadersur[50];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nt menu, menul, menul, submenul, submenul, submenul, submenus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        har surfaceInfo[50], intinfo[50], geomylew[50], text[50];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sprintf (surfaceinfo, "Asts", PATH, "surface.info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sprintf (trianginfo, "%s%s", PATH, "triang.info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sprintf (showinfo, "4s4s", PATH, "show, info");
sprintf (intinfo, "4s4s", PATH, "int. info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sprint (runinfo, "%s%s", PATH, "run. info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              float whitevec2[] = {1.0,1.0,1.0};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                loat whitevec[[] = (0.5,0.8,1.0];
loat backvec[] = (0.0,1.0,0.0];
loat bluevec[] = (0.0,0.0,1.0);
loat yelvec[] = (1.0,1.0,0.0);
loat redvec[] = (1.0,0.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   char *stroka(100), name(100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             xla+(sla/4),yla+(sla/4)),
xla+(sla *3)/4,yla+sla/4),
xla+(sla *3)/4,yla+(sla*3)/4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .xla+(sla/4),yla+(sla * 3)/4),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .xla+ela/2, yla+(sla * 5)/8),
                                                                                                                                                                                                                                                                                                                                                                                           ( (xla +sla/2), yla),
(xla+(sla •3)/8, yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                          |xla+(sla *5)/8,yla+sla/2|,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ·xla+sla/2, yla+(sla +3)/8),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE *fpl, *fp2, *fopen();
                                                                                                                                                                                                                                                                                                                                                                     float compas(16)(2) - (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ong xo, yo, xsize, ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nt mode, job, exitmode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ·xla+sla, yla+sla/21,
                                                                                                                                                                                                                                                                                                                                                                                                                                        'xla+sla/2, yla+sla},
                                                 finclude<fmclient.h>
                                                                                                 finclude <string.h>
                           #include<device.h>
                                                                                                                     !Include "cpath.h"
#include<std10.h>
                                                                                                                                                                       0.35
                                                                                                                                                                                         define xla 0,325
                                                                                                                                                                                                                  define yla 0.45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ong 191d, 191dl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .xla,yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                main (arge, argv)
                                                                          finclude<ql.h>
                                                                                                                                                                                                                                                                   define INFO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           char 'argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (argc< 3)
                                                                                                                                                                    define sla
                                                                                                                                                                                                                                                                                        define GO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hort mx, my;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Int arge;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else (
```

```
sprintf(geomvlew, "$s$s$s", PATH, "geomvlew", PLACE);
sprintf(text, "$s$s", PATH, "text!");
sprintf(leadersur, "$s$s", PATH, "leader.sur");
```

```
rectf(0.3 ,0.05,0.7,0.15);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rectf(0.2,0.85,0.7,0.95);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rectf(0.0,0.0,1.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             str[10] ="the model";
str[11] =" view ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fmfonthandle fsized;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        str(0) ""lation";
str(1) ""trlangu-":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           str[2] = "geoplane";
str[3] = " run";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  str(5) -"Interpo-";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       str[7] " " ;
str[8] " "change";
str[9] " data ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          str[6] = "options";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       int 1, k, ind, angle;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CMOV2 (0.35,0.095);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ind = 0;
for(i = 0;1<3;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                - 0.1; "0 - 0.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fmset font (fsized);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cmov2 (0.34,0.89);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     str(4)="lation";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fmfonthandle f;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            c3f (whitevec2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         c3f (backvec1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      size = 24.0;
rad = 0.1;
radl = 0.09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drawob ()
                                                                                                               smooth(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fminit ();
                                                                                                                                                                                     int 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ddtopup("no smoothing %f", smooth(0));
ddtopup(" smoothing, according to errors %f", smooth(1));
ddtopup(" smooth (all errors = 1) %f", smooth(2));
                                                                                                                                                                                                                                                                                                                                                                                                                                          enu2 = newpup();
iddtopup(menu2, "OPTIONS %t");
iddtopup(menu2, "errors in the input file?%m", submenu1);
iddtopup(menu2, "size of grid %m", submenu2);
iddtopup(menu2, "radius of confidence%m", submenu3);
iddtopup(menu2, "smoothing %m ", submenu4);
iddtopup(menu2, "smoothing %m ", submenu4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ddtopup("no kill \( \frac{k}{1} \) \( \frac{k}{2} \) \( \frac
                                                                                                                                                                                                                                                                                                     enul - defpup("EXIT GEOPLANE %t | YES | NO ");
                                                                                                                                                                                                                        enu = defpup("GEOPLANE %tiINFO |GO ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         submenul = newpup();
ddtopup(submenul," YES \( \frac{1}{1}, \) adderr(\));
ddtopup(submenul,"\( \frac{1}{1} \) \( \frac{1} \) \( \frac{1}{1} \) \( \frac{1} \) \( \frac{1}{1} \) \( \frac{1}{1} \) \( \frac{1} \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cintf("radofconf is working %d \n,i");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cint(("gridsize is working %d \n,1");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ddtopup("1000 %f", gridsize(1000));
ddtopup("10000 %f", gridsize(10000));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ddtopup("100 %f", gridsize(100));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            submenu3 = newpup();
ddtopup("100 %f",radofconf());
ddtopup("1000 %f",radofconf());
ddtopup("10000 %f",radofconf());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rintf("adderr is working");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               submenus - newpup();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submenu4 - newpup();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              submenu2 = newpup();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dofconf (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ridsize(1)
yMenus ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ئد
1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ئد 1;
```

```
float x0,y0,xre,yre,size,rad,radl;
char *str[15],str[100],stril[100],stri2[100];
char string[50],st[100];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sprint(stri," % % ",filename,max_size);
sprintf(stril," GEOPLANE ");
                                                                                                                                                                          printf("smooth is working %d \n,1");
printf("kill is working %d \n,i");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fmprstr((unsigned char * )stri);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fmprstr((unsigned char *)stril);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - fmfindfont("Times-Roman");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fsized - fmscalefont (f, size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for(k =0;k<2;k++)
xre = x0+1*0.3+rad;
yre = y0+k*0.4+rad;</pre>
```

default:

break;

menuval - dopup (menu); switch (menuval) (

1f(job > -1) (

mode . INFO;

swapbutfers();

Drawob; ();

case INFO:

mode - GO;

swapbuffers();

choice();

Job = -1;

Drawob)();

break;

default: job = -1; break;

case (GO) :

break;

choice();

1ob - -1;

```
else c3f(redvec);
rectf(xre-radl,yre-radl);
                  rectf(xre-rad,yre-rad,xre+rad,yre+rad);
if(ind != job)
                                                                                                                                                                                                                                                                                          fmprstr((unsigned char * )str[ind]);
cmov2(xre+0.03,yre+0.13);
fmprstr((unsigned char * )str[ind+1]);
                                                                                                                                                                                                                                                                           cmov2(xre+0.02,yre+0.07);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getsize (Exsize, Eysize);
                                                                                                                                                                              for(1 = 0;1<3;1++) (for(k =0; k< 2; k++) xre = x0+1*0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             switch(gread(&val)) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        getorigin (6xo, 6yo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  reshapeviewport ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         while ('qtest() ) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 case (RIGHTMOUSE):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               while (qtest () ) (
c3f (whitevec2);
                                                                                                                                                                                                                                      yre - y0+k*0.4;
                                                                                                                                                                                                                                                                                                                                                1nd - 1nd+2;
                                                       c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                  /*plcture();*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   case (REDRAW):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             processinput()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Int dev, 1, k, m;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 . K . B . 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             swapbuffers();
                                                                                                                                                                                                                                                        c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    long menuval;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Srawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                short val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drawobj();
                                                                                                                                                               ind = 0;
                                                                                                             Ind++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oreak;
```

```
choice()
    float xco,yco;
    int indi,ind2,ind5;
    xco = (float) (mx -xo )/(float)xsize;
    yco = (float) (my -yo)/(float)ysize;
    indl = 1;
    ind2 = 0;
    if(xcoco.3)&&(xco>0.1))(
        if(xcoco.3)&&(xco>0.1))(
        if(mode == GO)
        if(mode == GO)
        if (mode == INFO)
        trian_(filename,find2);
        trian_(filename,find5);
        job = -1;
        if (mode == INFO)
        try(trianginfo);
        job = -1;
        if(mode == GO)
        if(mode == GO)
```

!(job == -2) (
"enuval = dopup(menul);

1 - x) J

choicel();

qread(&mx);

i ((val) (

switch (menuval) (

case 1:
 exitmode = 1;
 break;

case 2:
 exitmode = 0;
 break;

```
xco = (float) (mx -xo )/(float)xsize;
yco =(float) (my -yo)/(float)ysize;
if(xco<0.3)&&(xco>0.1)){
   if(yco<0.46&yco>0.2)
   job = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                  else if ((xco<0.6)&6(xco>0.4))(
                                                                                                                                                                                                                                                                                                                                          else if (yco>0.6£ tyco<0.8)
                                      if (mode == INFO) {
try (surfaceInfo);
}ob = -1;
                                                                                                                                                                                                                                    float xco,yco;
      Job = -1;
                                                                                                                                                                                                    choice1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lnt_(&ind1);
system("rm rescales tempor addual");
                                                                                                                                                                                            Drawobj(); swapbuffers();
system("rm tempor addual text");
system (geomvlew);
sleep(10);
job = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else if((xco<0.9)&&(xco>0.7))
if(yco>0.2&&yco<0.4) {
if(mode == GO) {
                                                                                                                                                                                                                                                                                                                                                                                                                              else if ((xco<0.6)&&(xco>0.4)){
Drawobj(); swapbuffers();
trlan_(find2,find5);
lf(ind5 == 1){
Drawobj();
                                                                                                                                         Drawob)(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else 1f(yco>0.6& tyco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                start (filename, 6ind2);
show (text);
system("rm rescales");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                system("jot leader 4");
job = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1f (yco<0.46 tyco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f (mode == INFO) {
   try (intinfo);
}ob = -1;
                                                                                                                                                                                                                                                                                                    if (mode -- INFO) try(runinfo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f (mode -- GO) {
                                                                        swapbuffers();
                                                                                                                                                           int_ ($ind2);
job = 5;
                                                                                                                          Job - 2;
                                                                                                                                                                                                                                                                                                                                            Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Job - -1;
                                                                                                         else
```

```
else if (yco>0.644yco<0.8)
job = 5;
                         else if (yco>0.646yco<0.8)

job = 3;
                                                                                                                                                                                                                                                                    if (yco>0.85 && yco<0.95)
                                                                                                 else if (xco<0.966xco>0.7) |
                                                                                                                                                                                                                                     if(xco<0.7 && xco>0.3)
1f (yco<0.466yco>0.2)
job = 2;
                                                                                                                1f(yco<0.4&$yco>0.2)
3ob = 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bgnpolygon();
v2f (6compas(8)[0]);
v2f (6compas[1][0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              concave (TRUE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           picture()
```

if(mode == GO){
system("geomvlew<triang 6");
sleep(10);</pre>

else If (yco>0.644yco<0.8)

if (mode ** INFO) {
 try (showinfo);

Job - -1;

Job - -1;

```
v2f (&compas {9} {0});

v2f (&compas {10} {0});

v2f (&compas {10} {0});

v2f (&compas {10} {0});

v2f (&compas {11} {0});

v2f (&compas {11} {0});

v2f (&compas {11} {0});

v2f (&compas {10} {0});

v2f (&compas {11} {0});

v2f (&compas {11} {0});

v2f (&compas {10} {0});
```

c3f (bluevec);

ognelosedline();

/2f (compas[0][0]);
/2f (compas[1][0]);
/2f (compas[2][0]);
/2f (compas[3][0]);
/2f (compas[0][0]);
/docompas[0][0]);

31 (yelvec);

rove2 (compas (0) (0), compas (0) (1));

rove2 (compas (1) (0), compas (4) (1);

rove2 (compas (1) (0), compas (4) (1));

rove2 (compas (1) (0), compas (1) (1));

rove2 (compas (1) (0), compas (1) (1));

Ŋ

draw2 (compas[6][0], compas[6][1]);

```
int menu,menui,menu2,menu3,menu4,menu5,menu6,menu7,menu8,menu9,menu10;
                                                                                                                                                                              if (fp' = NULL) fscanf (fp, "*s", fillename);)
else strcpy(fillename , argv[l]);
    sprintf(leadersur,"%s%s", PATH,"leader.sur");
sprintf(prepar,"%s%s", PATH, "prepar");
sprintf(clean,"%s%s", PATH, "clean");
                                                                                                                                                                                                                                                                                while (fgets(stroka, 100, fpl)!-NULL) i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ortho (0.0, 1.0, 0.0, 1.0, -1.0, 1.0);
                                                                                                                                                       fp = fopen("geoname", "r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tie (RIGHTMOUSE, MOUSEX, MOUSEY);
                                                                                                                                                                                                                                                          fp2 = fopen("leader","w");
                                                                                                                                                                                                                                                                                                          fprintf(fp2,"%s", stroka);
                                                                                                                                                                                                                                fp1*fopen(leadersur, "r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gid - winopen ("geoplane");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qetsize (4xsize, 6ysize);
                                                                                                                                  system(prepar);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qdevice (RIGHTMOUSE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        while (!exitmode) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  getorigin (&xo, &yo);
                                                                                  system(clean);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 while (!qtest ()) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                winclose (igid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               prefsize (700, 700);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                processinput ();
                                                                                                       lf (argc< 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                 fclose(fpl);
                                                                                                                                                                                                                                                                                                                                                                                                        (close (fp2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               concave (TRUE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       system(clean);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 keepaspect (1,1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                        initialise();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               c3f (backvec1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (oreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hardcopy - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exitmode = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drawob1():
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                initialise()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         normalize (n)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gconflg();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         wlog = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peak - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    myMenus ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       norm = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   norm = 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Int n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int mode, job, exitmode, getout;
char [llename[50], runinfo[50], trianginfo[50], showinfo[50], lea ersur[50];
char surfaceinfo[50], intinfo[50], geomview[50], text[50], prepar[50], clean[50];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sprint((runinfo, "$6$s", PATH, "run.info");
sprint((rianginfo, "$5$s", PATH, "triang.info");
sprint((showinfo, "$5$s", PATH, "show.info");
sprint((intinfo, "$5$s", PATH, "int.info");
sprint((seurfaceinfo, "$5$s", PATH, "surface.info");
sprint((geomylew, "$5$s', PATH, "qeomylew", PLACE);
sprint((text, "$5$s", PATH, "text!");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     float whiteveci[] = [0.5,0.8,1.0];
float backveci[] = [0.0,1.0,0.0];
float blueveci[] = [0.0,0.0,1.0];
float yelveci[] = [1.0,1.0,0.0];
float redveci[] = [1.0,0.0,0.0];
float xelveci[] = [1.0,0.0,0.0];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  float whitevec2() - {1.0,1.0,1.0};
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE *fpl, *fp2, *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (xla*sla/2,yla*(sla *3)/8),

(xla*sla,yla*sla/2),

(xla*sla/2,yla*(sla * 5)/8),

(xla*(sla/4),yla*(sla * 3)/4),

(xla*(sla/4),yla*(sla/4)),

(xla*(sla *3)/4,yla*(sla/4),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           char stroka[100], name[100];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |xla+(sla *3)/4,yla+(sla*3)/4)
                                                                                                                                                                                                                                                                                                                                                                                                                        ( (xla +sla/2), yla),
(xla+(sla +3)/8, yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |xla+(sla +5)/8,yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                                               float compas[16][2] - [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            int norm, peak, hardcopy; float wlog;
                                                #include<fmclient.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |xla+sla/2,yla+sla},
                                                                                                #include <string.h>
#include "cpath.h"
                                                                                                                                                                     #define sla 0.20
#define xla 0.005
#define yla 0.805
                           *Include<device.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        char hardstr(100];
*Include<std10.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ong igld, igldl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int max_size;
main(argc,argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (xla, yla+sla/2),
                                                                         #Include<gl.h>
                                                                                                                                                                                                                                                                     define INFO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      char *argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     short mx, my;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int argo;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Int 1;
```

```
menul = defupp("GCPLANE %");
addropup(menul," OPEN %", restart);
addropup(menul," SAVE %");
addropup(menul," SAVE %");
menu2 = defpup("Level of smoothing %t %f! 2 %x2! 4 %x4! 8 %x8", get_max_size);
menu3 = defpup("ERRORS IN THE FILE? %t %f !% x4! 8 %x8", logar);
menu9 = defpup("ERRORS IN THE FILE? %t %f !YESINO", peaks);
menu9 = defpup("SNOOTH %t, !KILL PEAKS %m", menu8);
addropup(menu10, "ANOOTH %m", menu9);
addropup(menul0, "ANOOTH %m", make_hardcopy);
addropup(menul0, "HARDCOPY %f", make_hardcopy);
               sprintf(locstr,"#s%s%s%","launch -h \"cp triang\" -m \"Save file as\" -c \\"",
filename,".tri\\"");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       float x0,y0,xre,yre,s1ze,rad,rad1;
char *str1[15],str1[100],str11[100];
                                                                                                                                                                                                            menu - defpup ("GEOPLANE &t | INFO | GO ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   addtopup(menul0, "RESET ALL %f", reset);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ", filename);
GEOPLANE ")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - fmflndfont ("Times-Roman");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [sized - fmscalefont (f, size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               char string(50), st (100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  str1[10] ="the model";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int 1, k, ind, angle, len;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fmfonthandle f;
fmfonthandle fsized;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       strl[0] ="lation";
strl[1] ="trlangu=";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       strl(2)- "geoplane";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              strl(5) ="interpo-";
strl(6)= "options";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  str1{7} = " ;
str1{8} = "change";
str1{9} = "data ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sprintf(strl," %s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   str1(3)- " run";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fmset font (fs1zed);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         str1 (4) ="lat lon";
char locstr[100];
                                                               system (locstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sprintf(stril,"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          strl[11] -"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    size = 24.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rad1 = 0.09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drawobj()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fminit ();
                                                                                                                                                 myMenus ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -c \"",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               orintf(hardstr,"4s%s%s",
:aunch -h \"mv hardtmp\" -m \"Save hardcopy as\"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fp = fopen("geoname","r");
if(fp'= NULL) fscanf(fp,"\s",filename);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fp2 = fopen("leader" "w");
while(fgets(stroka,100,fpl)'=NULL) {
   fprintf(fp2,"%s",stroka);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ILE *fpl, *fp2, *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fpl-fopen(leadersur, "r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       !lename, ".mongo\"");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           har stroka(100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fclose(fp2);
fclose(fp);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (close (fpl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ystem(prepar);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ake_hardcopy()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       et_max_size(n)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ystem(clean);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "apbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ardcopy - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ardcopy = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ax_size - n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          estart (n)
nt n;
                                                                                                                                                                                                                                                                                                                                                                                                                 xeak = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rawob)();
                                                                                                                                                                                                                                                                                                                                                                                           1000 - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                 orm - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            eturn n;
                                                                                                                                 100 - 8;
                                                                                                                                                                                                                                                              eak - n;
                                                                                                                                                                                                seaks (n)
                                                                                                                                                                                                                                                                                                                            eset (n)
                                                                   ogar (n)
                                                                                                                                                                                                                                                                                                                                                  מל שי
                                                                                         nt
n;
                                                                                                                                                                                                                    nt n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             יני טי
```

rect f (0.0,0.0,1.0,1.0);

c3f (backvec1);

ave_trlang()

geoform1.c

getorigin(&xo, &yo);
getsize(&xsize, &ysize);

while (!qtest()) {

swapbuffers();

Drawobj();

case (RIGHTMOUSE):

gread (6mx);

1 f (val) { break;

qread(£my);

1f(k -- 1) {

choicel();

switch(qread(&val)) (
case (REDRAW):

Drawobj();

reshapeviewport();

```
rectf(xre-radl,yre-radl,xre+radl,yre+radl);
lnd++;
                                                                                                                                                                                                                                                                                    rectf(xre-rad, yre-rad, xre+rad, yre+rad);
if(ind != job)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 len = (strlen(filename) + 4)*0.7;
size = (0.4*xsize)/(float)len;
lf(size>24) size = 24;
fsized = fmscalefont(f,size);
fmsetfont(fsized);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c3f(whitevec2);
rectf(0.3 ,0.05,0.7,0.15);
cmov2(0.35,0.095);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fmprstr(strl{ind});
cmov2(xre+0.03,yre+0.13);
fmprstr(strl[ind+1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cmov2 (xre+0.02, yre+0.07);
              rectf(0.3,0.85,0.7,0.95);
c3f(yelvec);
cmov2(0.34,0.89);
                                                                                                                                                                                                                                                                                                                                                                                                                                        ind = 0;
for(i = 0;i<3;i++) {
  for(k =0; k< 2; k++)
  xre = x0+i*0.3;</pre>
                                                                                                                                                                                                          for(k =0;k<2;k++)
xre = x0+1*0.3+rad;</pre>
                                                                                                                                                                                                                                                 yre - y0+k*0.4+rad;
                                                                                                                                                                                        for (1 = 0; 1<3; 1++)
                                                                                                                                                  x0 - 0.1;y0 - 0.2;
                                                                                                                                                                                                                                                                                                                                              else c3f (redvec);
                                                                                                                                                                                                                                                                  c3f (whitevec2);
                                                                           (mprstr(strll);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yre - y0+k*0.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ind - ind+2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (mprstr(str1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            int dev,l,k,m;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ong menuval;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       orocessinput()
                                                                                                                                                                                                                                                                                                                          c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c3f (yelvec);
c3f (bluevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            short val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          olcture ();
```

1f(job == -2) {
menuval = dopup(menul);
switch(menuval) {

case 3: exitmode = 1;

default:

break; break;

```
menuval = dopup(menul0);
                                                                                      if(job > -166 job!=3) {
                                                                                                    menuval = dopup (menu);
switch (menuval) (
                                                                                                                                                                                                                    se (GO) :
mode - GO;
                                                                                                                                         mode - INFO;
                                                                                                                                                                                                                    case (GO)
                                                                                                                                                                                                                                                                                                break;
                                                                                                                                                                                                       break;
                                                                                                                              case INFO:
                                                                                                                                                                                                                                                        swapbuffers();
choice();
job = -1;
                                   swapbuffers();
                                                                                                                                                                 swappuffers();
1f(job == 3)l
                       Drawob; ();
                                                                                                                                                      Drawob; ();
                                                                                                                                                                                                                                              Drawobj();
                                                                                                                                                                                                                                                                                                                                                                          job = -1;
break;
                                                  Job - -1;
                                                                                                                                                                               Job - -1;
                                                              choice();
                                                                                                                                                                                           choice();
                                                                                                                                                                                                                                                                                                                                                              default:
```

*hile (qtest ()) (

geoform1.c

```
start_(filename, &norm, &wlog, &peak);
job = 0;
                                                                                                                                                                                                                                                                                   start_(filename, &norm, &wlog, &peak);
trian_(&hardcopy);
if (hardcopy) system(hardstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 system("rm tempor addual text");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      add (fmax_size);
int (fmax_size);
if (hardcopy) system(hardstr);
                                                                                                  xco = (float) (mx -xo ) / (float) xsize;
yco = (float) (my -yo) / (float) ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drawobj(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drawobj(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            max_size = dopup(menu2);
if(max_size>1) {
   add_(@max_size);
   Drawobj(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drawobj(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   max_size - dopup (menu2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                else if ((xco<0.6)&&(xco>0.4))(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else if (yco>0.644yco<0.8)
                                                                                                                                                                                  1f((xco<0.3) 66(xco>0.1)) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          trian_(&hardcopy);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f (max_size > 1) {
    job = 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    system (geomvlew);
                                                                                                                                                                                                       1f (yco<0.464yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f (yco<0.444yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                         1f (mode -- INFO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f (mode -- INFO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f (mode == GO) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if (mode == GO) {
                                                                                                                                                                                                                                                                                                                                                                                                            try(trlanginfo);
                                                          int indl, ind2, ind5;
                                                                                                                                                                                                                                               1f (mode == GO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sleep(10);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ind1 = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     try(runinfo);
job = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Job - 5;
                                                                             long menuvall;
                                     float xco, yco;
                                                                                                                                                                                                                                                                                                                                                 10b - -1;
                                                                                                                                          Indl - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                 100 - -1;
choice ()
```

```
int_(&max_size);
system("rm rescales tempor addual");
                                                                                                                                                                                                                                                                                                                                                               start_(filename, &norm, &wlog, &peak);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              xco = (float) (mx -xo )/(float)xsize;
yco =(float) (my -yo)/(float)ysize;
if((xco<0.3)&&(xco>0.1)){
                                                                                                                                                                                                                                                                                                     else 1f((xco<0.9)&& (xco>0.7))
                                                                                                                                                                                                                                                                                                                                                                                                        ! f (hardcopy) system(hardstr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     else if ((xco<0.6)&&(xco>0.4))(
if(yco<0.4&&yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if (yco>0.6££yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else 1f (yco>0.6&&yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else if (yco>0.64£yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                        show_(text, thardcopy);
                                                                                                                                                                                                                                                                                                                                                                                                                             system("rm rescales");
                                                                                                 1f (mode == INFO) {
                                                                                                                                                                                                                                                                                                                          1f (yco>0.266yco<0.4) (
1f (mode == GO) (</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f (yco<0.464yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if (mode == INFO) {
                                                                                                                    try (intinfo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     system(geomvlew);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (mode -- INFO) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     try (surfaceinfo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1f (mode == GO) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        try (showinfo);
                                                                                                                                         Job - -1;
                                     Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sleep(10);
                                                                                                                                                                                                                                                                                                                                                                                                                                                  10p - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10p - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           float xco, yco;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      job - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Job = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Job - 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Job - 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     choicel()
```

```
v2f(tcompas(5)(0));
v2f(tcompas(5)(0));
v2f(tcompas(6)(0));
v2f(tcompas(4)(0));
v2f(tcompas(4)(0));
endclosedline();
c3f(bluevec);
bgnpolygon();
v2f(tcompas(0)(0));
v2f(tcompas(1)(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   endpolygon();
c3f (yelvec);
bgnclosedline();
v2f (compas(0)(0));
v2f (compas(1)(0));
v2f (compas(3)(0));
v2f (compas(3)(0));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v2f (&compas(3)[0]);
v2f (&compas(0)[0]);
v2f(&compas(4)[0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      v2f (&compas[2][0]);
                                                                                                                    bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        endclosedline();
                                         endpolygon();
                                                                               c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ove2 (compas[9][0], compas[9][1]);
raw2 (compas[9][0], compas[11][1]);
raw2 (compas[10][0], compas[10][1]);
raw2 (compas[10][0], compas[10][1]);
fubluevec);
ghpolygon();
2 (6compas[6][0]);
2 (6compas[6][0]);
2 (6compas[6][0]);
2 (6compas[6][0]);
2 (6compas[6][0]);
                                                                                                                                               else if (yco>0,644yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                             if (yco>0.85 & yco<0.95)
                                 else if (xco<0.944xco>0.7) (
                                                                                                                                                                                                                                                                                                                                                          if (xco<0.7 && xco>0.3)
                                                                           1f (yco<0.466yco>0.2)

Job = 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Jgnpolygon();
2f(compas(8|{0}));
2f(compas(9|{0}));
2f(compas(9|{0}));
2f(compas(9|{0}));
2f(compas(10|{0}));
2f(compas(10|{0}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  concave (TRUE);
                                                                                                                                                                                                10p - 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     picture()
[
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <del>g</del>
```

move2 (compas(0) (0), compas(0) (1));
draw2 (compas(2) (0), compas(2) (1));
move2 (compas(4) (0), compas(4) (1);
move2 (compas(3) (0), compas(3) (1));
draw2 (compas(6) (0), compas(6) (1));

```
sprintf(surfaceinfo,"%s%s", PATH, "surface.info");
sprintf(sgeomview", "%s%s%s", PATH, "sgeomview", PLACE),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           menu = defpup("GEOSPHERE %t | INFO | 150 ");
menul = defpup("EXIT GEOSPHERE %t | YES | NO ");
tie(RIGHTMOUSE, MOUSEX, MOUSEY);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          float x0,y0,xre,yre,size,rad,radl;
char *str[15],str1[100],str11[100];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ortho (0.0, 1.0, 0.0, 1.0, -1.0, 1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 igid = winopen("geosphere");
                                                                         max_size = atol(argv[2]);
                                                                                                   strcpy(filename,argv[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    char string[50], st[100];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          getsize (fxsize, fysize);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "the model";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fmfonthandle fsized;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             str[2]= "geosphere";
str[3]= " run";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               str(5) -"interpo-";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qdevice (RIGHTMOUSE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               str[1] -"triangu-";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - "change";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     str[9] =" view ";
                                                                                                                                                                                                           while ('exitmode) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       getorigin (&xo, &yo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int i,k,ind,angle;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         str[7] =" data ";
str[8] ="the model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       prefsize (700, 700);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           str(0) ="lation";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       str[4]-"lation";
                                                                                                                                                                                                                               while (!gtest ()) {
                                                                                                                                                                                                                                                                                                                    processinput();
                                                                                                                                                                                                                                                                                                                                                                                  winclose (igid);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              keepaspect (1,1);
                                                                                                                                                                                                                                                                         swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fmfonthandle f;
                                                                                                                       initialise();
concave (TRUE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           c3f (backvec1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        foreground (0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exitmode = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               size = 18.0;
rad = 0.1;
                                                                                                                                                                                                                                                     Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                Initialise()
                                                                                                                                                                   Drawob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gconflg();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drawob)()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (t- - qo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         str(6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           print("usage: geosphere (name of file) (number of points after interpolation)\n");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      char (ilename(30), sruninfo(50), addsinfo(50), showinfo(50);
char surfaceinfo(50), intsinfo(50), sgeomvlew(50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sprint((sruninfo, "%s%s", PATH, "srun.info");
sprint((adds.nfo, "%s%s", PATH, "adds.info");
sprint((showinfo, "%s%s", PATH, "show.info");
sprintf(intsinfo, "%s%s", PATH, "ints.info");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float whitevec2[] = [1.0,1.0,1.0];
float whitevec1[] = [0.5,0.8,1.0];
float backvec1[] = [1.0,1.0,0.0];
float bluevec[] = [0.0,0.0,1.0];
float yelvec[] = [1.0,1.0,1.0];
float redvec[] = [1.0,1.0];
float xo.yo.xs.ze,yslze;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               char *stroka[100], name[100] ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (xla+sla/yla+sla/2),

(xla+sla/2,yla+(sla * 5)/8),

(xla+(sla/4),yla+(sla * 3)/4),

(xla+(sla/4),yla+(sla/4),

(xla+(sla * 3)/4,yla+(sla*3)/4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE *fpl, *fp2, *fopen();
If (argc< 3)
                                                                                                                                                                                                                                                                                                                                                                                              { (xla +sla/2),ylu},
(xla+(sla *3)/8,yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (xla,yla+sla/2),
(xla+sla/2,yla+(sla *3)/8),
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (xla+(sla *5)/8,yla+sla/2),
                                                                                                                                                                                                                                                                                                                                                                      float compas[16][2] - (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int mode, job, exitmode;
                                                                                                                                                                                                                                                                                                                                                                                                                                      (xla+sla/2,yla+sla},
                                                                                         #include<fmclient.h>
                                                                                                                               ## finclude cstring.h>
## finclude *cpath.h*
                                                                   #include<device.h>
                                                                                                                                                                                             define sla 0.35
                                                                                                                                                                                                                 #define xla 0.325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      long igld, igldl;
                                             (Include<std10.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          main (argc, argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int max size;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 char *argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int menu, menul;
geoform2.c
                                                                                                             #include<gl.h>
                                                                                                                                                                                                                                                                                  define INFO 1
                                                                                                                                                                                                                                                                                                        define GO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          short mx, my;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int arge;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Int 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int ind5;
```

```
%d ",filename,max_size);
GEOSPHERE ");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rect f (xre-rad), yre-rad), xre+rad), yre+radl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rectf(xre-rad,yre-rad,xre+rad,yre+rad);
if(ind != job)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cmov2(xre+0.02,yre+0.07);
(mprstr(lunsigned char * )str[ind]);
cmov2(xre+0.03,yre+0.13);
(mprstr[lunsigned char * )str[ind+1]);
                                                                                                                                                                                                                              rect (0.0,0.0,1.0,1.0);
c3f(whitevec2);
rectf(0.3,0.05,0.7,0.15);
c3f(bluevec);
fmprstr((unsigned char * )stri);
rectf(0.3,0.85,0.7,0.95);
                                                                                                                                                                                                                                                                                                                                                                                                      fmprstr({unsigned char *)stril);
                                                                                                                                      ( - Imfindfont ("Times-Roman");
                                                                                                                                                       (sized = fmscalefont (f, size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (or (1 = 0;1<3;1++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for(k =0; k< 2; k++)
If(1 * k != 1) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (or (x =0. x< 2; x++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          xre = x0+1*0.3+rad;
yre = y0+k*0.4+rad;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for (1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              - 0.1;y0 - 0.2;
                                                        sprintf(stri," %s
                                                                                                                                                                                                                                                                                                                                                                    c3f(yelvec);
cmov2(0.34,0.89);
                                                                                                                                                                           (mset font (fsized);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else c3f (redvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               c3f (whitevec2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      xre = x0+1*0.3;
yre = y0+k*0.4;
                                                                             sprint (stril,"
                                                                                                                                                                                                                c3f (backvec1);
geoform2.c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ind - Ind+2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          c3 ( (p) nevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nort val;
nt dev,l,k,m;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :ocessinput ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(1*k!-1) (
                                        :adl - 0.09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1nd = 0;
                                                                                                                    (minit ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ind = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ind++;
```

```
choicel();
if(job == -2) (
menuval = dopup(menul);
switch(menuval) (
                                                                                                                                                get size (&xsize, &ysize);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     se (GO) :
mode = GO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               menuval - dopup (menu);
                                                                                           switch(qread(&val)) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mode - INFO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           switch (menuval) (
                                                                                                                                   getorigin (exo, eyo);
                                                                                                                                                                                                                                                                                                                                                                                                                   exitmode = 0;
                                                                                                                                                                                                                                                                                                                                                                             exitmode = 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    case (GO)
                                                                                                                    reshapevlewport();
                                                                                                                                                              while (!qtest() ) {
                                                                                                                                                                                                                              case (RIGHTMOUSE):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    break;
                                                                  while (qtest () ) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          case INFO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(job > -1) (
                                                                                                        case (REDRAW):
                                                                                                                                                                                                                                                                                                                                                                                                                                               default:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            swapbuffers();
                                                                                                                                                                                       swapbuffers();
             1 - K - B - 0;
long menuval;
                                                                                                                                                                                                                                                                                                                                                                                          break;
                                                                                                                                                                                                                                                                                                                                                                                                                                   break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             break;
                                                                                                                                                                                                                                                                                                                                                               case 1:
                                                                                                                                                                                                                                                        gread (6mx);
                                                                                                                                                                                                                                                                                               1f(k -- 1) {
                                                                                                                                                                                                                                                                      gread(6my);
                                                                                                                                                                                                                                                                                                                                                                                                        case 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drawobj();
                                                                               Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drawobj();
                                                                                                                                                                           Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    default:
    job = -1;
    break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13b - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           choice();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cholce();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        job = -1;
                                                                                                                                                                                                                                           1f(val)(
                                                                                                                                                                                                                 break;
```

```
adds_(filename, &max_size, &ind5, &ind7);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  xco = (float) (mx -xo )/(float)xsize;
yco = (float) (my -yo)/(float)ysize;
if((xco<0.3)&&(xco>0.1))
                                       system("rm saddual stempor");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            system("sgeomview<triang 6");
sleep(10);</pre>
                                                                                                                                                                                                                                                                   else if((xco<0.9)&&(xco>0.7))
if(yco>0.2&&yco<0.4){
if(mode -= GO){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else If ((xco<0.6)&&(xco>0.4))(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               job = 0;
else if (yco>0.644yco<0.8)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   else if (yco>0.644yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else If (xco<0.946xco>0.7) (
    If (yco<0.446yco>0.2)
    Job = 3;
if (mode == GO) {
ints_(&ind5, &ind7);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           If (yco<0.466yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f (yco<0, 46 syco>0, 2)
                                                                                               1f (mode -- INFO) (
                                                                                                                                                                                                                                                                                                                                                                                     f (mode -- INFO) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (mode -- INFO) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      try(surfaceinfo);
job = -1;
                                                                                                                 try(Intsinfo);
                                                                                                                                                                                                                                                                                                                                                                                                        try (showinfo);
                                                                                                                                                                                                                                                                                                                                                                                                                            Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f (mode == GO) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10p - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  float xco, yco;
                                                            jop = -1;
                                                                                                                                     Job - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Job - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Job = 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               choicel()
                                                                                                                                                                                                                                                                                                                                                             adds (filename, &max_size, &ind5, &ind6);
job = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    adds (filename, smax_size, sind5, sind6);
if (ind5 ** 0) |
                                                                                                          float xco,yco;
int ind;,ind2,ind6,ind7;
xco = (float) (mx -xo )/(float)xsize;
yco =(float) (my -yo)/(float)ysize;
ind1 = 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drawob)(); swapbuffers();
system("rm saddual stempor");
system (sgeomvlew);
sleep(10);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else If ((xco<0.6)& (xco>0.4)) (
If(yco<0.4& (yco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else if (yco>0.644yco<0.8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drawob)(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Drawobj(); swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drawob)(); swapbuffers();
                                                                                                                                                                                                                                                                 if ((xco<0.3) && (xco>0.1)) {
                                                                                                                                                                                                                                                                                     1f (yco<0.44 tyco>0.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ints_ (6ind5,6ind6);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ints_(find5, find7);
                                                                                                                                                                                                                                                                                                                                                                                                                      1f (mode -- INFO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (mode == INFO)
try(sruninfo);
job = -1;
                                                                                                                                                                                                                                                                                                                          1f (mode .. GO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (mode -- GO)
                                                                                                                                                                                                                                                                                                                                                                                                                                        try (addsinfo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sleep(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                             lob - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Job - 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Job - 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10b - 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10b - 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Job - -1;
                                                                                                                                                                                                                            ind6 - 0;
ind7 - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else
                                                                                                                                                                                                          ind2 - 0;
                                                                        cholce ()
```

```
move2 (compas [0] [0], compas [0] [1]);
draw2 (compas [2] [0], compas [2] [1]);
move2 (compas [4] [0], compas [4] [1]);
draw2 (compas [1] [0], compas [1] [1]);
move2 (compas [3] [1]);
draw2 (compas [6] [0], compas [6] [1]);
                                                  v2f (compas [5] (0]);
v2f (compas [6] (0]);
v2f (compas [7] (0]);
v2f (compas [4] (0]);
endclosedline();
                                                                                                                                       c3f (bluevec);
bgnpolygon();
v2f (tcompas[0][0]);
v2f (tcompas[1][0]);
                                                                                                                                                                                                                                                                                                                                    v2f(tcompas[1][0]);
v2f(tcompas[2][0]);
v2f(tcompas[3][0]);
v2f(tcompas[0][0]);
                                                                                                                                                                                                            v2f (£compas[2][0]);
v2f (£compas[3][0]);
v2f (£compas[0][0]);
                                    v2f(&compas[4][0]);
                                                                                                                                                                                                                                                                                                                     v2f (6compas[0][0]);
                                                                                                                                                                                                                                                                                   c3f (yelvec);
bgnclosedline ();
                                                                                                                                                                                                                                                                                                                                                                                                         endclosedline();
                                                                                                                                                                                                                                                                    endpolygon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                             c3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -ove2 (compas(9)[0], compas(9][1]);
iraw2 (compas[1][0], compas[1][1]);
ivove2 (compas[8][0], compas[8][1]);
iraw2 (compas[10][0], compas[10][1]);
if (bluevec);
                                    else if (yco>0.664yco<0.8)
                                                                                                                                                              1f (yco>0.85 && yco<0.95)
                                                                                                                            If (xco<0.7 &6 xco>0.3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              concave (TRUE);
c3f (bluevec);
bqnpolygon();
v2f (compas [9] [0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ognpolygon();
/2f (&compas[4][0]);
/2f (&compas[5][0]);
/2f (&compas[6][0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /2f (6compas[7][0]);
/2f (6compas[4][0]);
geoform2.c
                                                         Job - 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               () uobolodpu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   endpolygon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .3f (yelvec);
                                                                                                                                                                                                                                                                                                                                                                               picture()
```

gnclosedline();

Thu Dec 10 16:33:45 1992

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Actuator • editPalette, • distance, • theta, • phl , • model, •xlightl, •ylightl, •zlightl, •xlightl, •xli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BUTTON2 (v, n, b, t, 1) \
v = pnl mkact (pnl toggle_button) ; \
v->labeltype = PNL_LABEL_BOTTOM; \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v = pnl_mkact (pnl_button) ; \
v -> labeltype = PNL_LABEL_BOTTOM; \
v -> label = n ; \
v -> minval = b ; \
v -> maxval = t ; \
v -> val = 1 ; \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v = pnl_mkact (pnl_radio_button); \
v->labeltype = PNL_LABEL_BOTTOM; \
                                                            (a)
                                                                                                                                                                                                                        WKHSLIDER(v, n, b, t, 1)\
v = pnl_mkact (pnl_vslider) ;\
v -> label = n ;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BUTTON3 (v, n, b, t, 1)\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BUITON (v, n, b, t, 1) \
                                                               .. ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v -> label = n; \
v -> minval = b; \
v -> maxval = t; \
v -> val = i; \
v -> x = x; v -> y = y; \
v -> h = hi; v -> w = w; \
                                                            ? (a)
? (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v -> x = x ; v -> y = y ;/
v -> h = hl;v -> x = x;/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v = pnl_mkact(pnl_label);\
v->label = n;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v -> x = x ; v -> y = y ; \
v -> h = h1; v -> w = w; \
                                                            #define min(a, b) ((a) < (b) #define max(a, b) ((a) > (b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LABEL (v, n) \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v -> minval = b;\
v -> maxval = t;\
                                                                                                                                                                                                                                                                                                                     v -> minval = b;\
v -> maxval = t;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          v -> label - n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    v -> val = 1 ;/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pnl_addact(v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *11ght1, *11ght2, *11ght3;
                                                                                                                                                                                                                                                                                                                                                                                       v -> val = 1;\
                                                                                                                                                                                                                                                                                                                                                                                                                        V->W = 0.6; \
                                                                                                                                                                                                                                                                                                                                                                                                                                                         v->h = 4.0;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /:x : x<->
                                                                                                                                                               float Max , scal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DefPanel()
                                                                                                                                                                                                                              define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      p -> p = (Vec **) calloc(nsides, sizeof(Vec *));
p -> s * (int * ) malloc(3* sizeof(int ));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 p = (Polygon *) malloc (sizeof(Polygon)) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          npoints, npolys;
mins = (1000000, 1000000, 1000000);
maxs = (-1000000, -1000000, -1000000);
v1(SIZE), v2(SIZE)(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      backvec() = (0.8, 0.8, 0.8);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 backvec(] = [0., 0., 0.];
blackvec(] = [0.0, 0.0, 0.0];
redvec(] = [1.0, 0.0, 0.0];
whitevec(] = [1.0, 1.0, 1.0];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                yelvec[] = (1.0,1.0,0.0];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          p -> p_nsides = nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              [loat color_palette(maxcol)[3];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              float wx2,wy2,wz2,scal_par;
typedef float Vec(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         p_nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           • P(SIZE);
N(SIZE),N1(SIZE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Object Vobj, sphere, Vobjl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Polygon * p;
                                                                                                                                                                                                                                                                                                   define maxcol 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 loat OldMatrix(16);
                                                                                                                                                                                                finclude <device.h>
finclude<string.h>
finclude "cpath.h"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   olygon * taxePolygon (nsides)
                                                                                                                                                                     "panel.h"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return p ;
                                                                     <std10.h>
                                                                                                      <math.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                v(SISE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : 6elj6au
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :ypedef struct {
                                                                                                                                       <91.h>
                                                                                                                                                                                                                                                                                                                                                                                                311S
                                                                                                                                                                                                                                                                                                                                                               ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               typedef float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      int nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           In
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      · Polygon ;
geomv.c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     int ncol;
                                                                     finclude
                                                                                                      • Include
                                                                                                                                    • Include
                                                                                                                                                                     finclude
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           olygon
                                                                                                                                                                                                                                                                                                                                 define
                                                                                                                                                                                                                                                                                                                                                                  •define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      '·float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    float
```

(loat (loat (loat

감

```
MKHSLIDER (ylightl, "Y", -1.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max = max(Max, maxs[2]-mins[2]);
shiftx = 0.5*(maxs[0]+mins[0]);
shifty = 0.5*(maxs[1]+mins[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                myMouse = pnl_mkact (pnl_mouse);
pnl_addact (myMouse, p);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BUTION (model, "Wireframe",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           float shiftx , shifty, tempo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for (1 = 0;1<npoints;1++)
                                                                                                                                                                                                                                                                                                                                                                                             y+=z11ght2->h+1.5*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tmpl, tmp2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    y+-h1+sep;x - 2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*Lala: I changed here */
                                                                                                                                                                                                                                                                                                                                                  x+=theta=>w+0.3;
                                                  x+=theta->w+0.3;
                                                                                                                                                                                                x+=theta->w+0.3;
                                                                                                                                                                                                                                           x+-theta->w+0.6;
                                                                                                                                                                                                                                                                                                x+=theta->w+0.3;
x+=theta=>w+0.3;
                                                                                                                                                x+=theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                         x = 2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       × • 6.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ReadObject()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              •
    * p;
x = 0.0, y = 0.0, sep = 0.6, sep1=1.1 , sep2 = 0.4;
h1= 0.5, w = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BUTTON3 (savePosition, "Save Position", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BUTTON3 (getPosition, "Get Position", 0.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BUTTON3 (editPalette, "Edit Palette", 0.0, 1.0, 0.0);
                                                                                                                                                                                                    x = 4.5;y = quit->h+sep;
BUTTON3(savePict, "SAVE PICTURE", 0.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MKHSLIDER(slze, "SI2E", 0.5,5.0 ,2.0/Hax); y+*slze->h +1.5*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MKHSLIDER(shix, " X", -1.0 Max, Max, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MKHSLIDER(shiy, " Y", -1.0 "Max, Max, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MKHSLIDER(distance, " 2", -2.0,2.0,0.0);
                                                                                                                                                                                                                                                                           inputStr = pnl_mkact(pnl_typein);
InputStr->labeltype = PNL_LABEL_TOP_LEFT;
InputStr ->label = "Save as: ";
InputStr->x = 0.0;inputStr->y = y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BUTTON2 (11ght3, "BLUE LIGHT", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKHSLIDER (theta, "2 ", 0.0, 3600.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MKHSLIDER(phi, "X ", 0.0, 3600.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKHSLIDER(twist, "Y ", 0.0, 3600.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BUTTON2 (11ght 2, "RED LIGHT", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BUTTON2 (11ght1, "LIGHT", 0.0, 1.0, 1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MKHSLIDER (x11ght1, "X", -1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BUTTON2 (box, "SHOW BOX", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BUTTON3 (reset, "RESET", 0.0, 1.0, 0.0);
                                                                                                                           -> label - "Control Panel v.10"
                                                                                                                                                                             BUTTON3 (quit, "QUIT", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MMHSLIDER(ysc, "Y ",.1,10 ,1.0)
x+*theta->w+0.3;
MKHSLIDER(zsc, "Z ",.1,10 ,1.0)
x+*theta->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKHSLIDER (xsc, "X ",.1,10, 1.0)
                                                                                                                                                                                                                                                                                                                                                                           pnl_addact(inputStr,p);
y += inputStr->h+2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LABEL (11, "TRANSLATE");
                                                                                                                                                                                                                                                      y+* savePict->h+sep;
                                                                                                         - pnl_mkpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LABEL (12, "ROTATE");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             +-reset ->h+2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - 0.5;y+ - w+sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LABEL (13, "SCALE");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  y+=h1+sep;x = 0.0;
                                                                                                                                                      -> ppu = 36.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x+=theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         X+*theta->x+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x+=theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x+=theta->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x+=ph1->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X+*Dh1->#+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x+=ph1->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x = 5.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x * 4.5;
                                                                                                                                                                                                                                                                                                                                                                                                                             - 2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       × = 8.0;
                                float
                                                      float
         Panel
```

```
for (1 = 0; i < npoints; i++) {
    scanf("%f %f %f\n", &(V(1)[0]), &(V(1)[1]), &(V(1)[2]))</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fprintf(stderr, "%d points, %d polys\n", npoints, npolys) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for (ku = 0 ; ku < 3 ; ku++) {
    mins(ku) = min(mins(ku), V(i)(ku)) ;
    maxs(ku) = max(maxs(ku), V(i)(ku)) ;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BUTTON (smooth, "Gourand Lighting", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max = max(maxs[0]-mins[0], maxs[1]-mins[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ٠.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BUTTON(surface, "Lighting", 0.0, 1.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0, 1.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BUTTON2 (tumble, "Tumble", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int i, j, ku, nverts, index[3], nsides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    scanf ("td td\n", & npolys, & npoints)
MKHSLIDER (z11ght1, "2", -1.0, 1.0, 1.0);
                                                                                                                                                                                        MKHSLIDER (z11ght2, "Z", -1.0, 1.0, 1.0);
                                                                                                                                                                                                                                                         MKHSLIDER (x11ght3, "X", -1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                           MKHSLIDER (ylight3, "Y", -1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                   MKHSLIDER (2119ht3, "Z", -1.0, 1.0, 1.0);
                                   x+*theta->w+0.6;
MKHSLIDER(x11ght2,"X",-1.0,1.0,0.0);
                                                                                                                            MKHSLIDER (ylight2, "Y", -1.0.1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for () = 0; 5 < 3; 5++) {
    mins() = 1e10;
    maxs() = -1e10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x = 6.0;
BUTTON (map,"3D Map",0.0,1.0,0.0);
y +-h1+sep;x = 4.0;
```

```
" (float) sqrt(a(0) * a(0) + a(1) * a(1) + a(2) * a(2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - I SPECULAR, 1.0, 0.2, 0.8, EMISSION, 0.8,0.8,0.0, DIFFUSE, 0.8, 0.0, 0.0, AMBIENT, 0.2, 0.0, 0.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c(0) = a(1) * b(2) - b(1, * a(2);
c(1) = - (a(0) * b(2) - b(0) * a(2));
c(2) = a(0) * b(1) - b(0) * a(1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - ( LCOLOR, 1.0, 1.0, 1.0, POSITION, 0.0, 0.0, 1.0, 0.0, LMNULL );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SHININESS, 3.0,
                                                     for (1 = 0; 1 < npolys; 1++) (
for (3 = 0; 3 < 3; 3++) (
N1 [ P[1]->s(3] 110)+* N[1][0];
N1 [ P[1]->s(3] 1[1]+* N[1][1];
N1 [ P[1]->s(3] 1[2]+* N[1][2];
                                                                                                                                                                                               or (i = 0; i < npolys; i++)
VecNormalize(N1(1));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LMNULL ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . . ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           c(0) = a(0) - b(0)
c(1) = a(1) - b(1)
c(2) = a(2) - b(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                        .. .. ..
                                                                                                                                                                                                                                                                                                                                                                                                                                    - a(0)
- a(1)
- a(2)
N1(1)(2) - 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fleat shinymaterial()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ....
                                                                                                                                                                                                                                                                                                                                                                                                                                      • • •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecCross(a, b, c)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      float 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ๋ ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VecNormalize (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                      a (0)
a (1)
a (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VecSub(a, b,
Vec a, b, c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a [0]
a [1]
a [2]
                                                                                                                                                                                                                                                                                                                                                                           VecNegate (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  float sunl()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Veca, b,
                                                                                                                                                                                                                                                                                                                                                                                                Vec a ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vec a ;
                                                                                                                                                                                                                       P[1] = MakePolygon(3);
for (3 = 0; j < 3; j++) {
    scanf("4d", &index[j]);
P[1]->s[j] = Index[j] = 1;
P[1]->p[j] = V + (index[j] = 1);
V2[i][j] = V + (index[j] = 1);
V2[i][j] = V[index[j] = 1];
for (ku = 0; ku < 3; ku++) {
    mins[ku] = min(mins[ku], V[index[j]-1][ku]);
    maxs[ku] = max(maxs[ku], V[index[j]-1][ku]);</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fprintf(stderr, "bbx: %f - %f\n", mins{0}, maxs{0})
fprintf(stderr, "bby: %f - %f\n", mins{1}, maxs{1})
fprintf(stderr, "bbz: %f - %f\n", mins{2}, maxs{2})
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - N(1)(0);
- N(1)(1);
- N(1)(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - 0; i < npolys; i++) {
    VecSub[P[i]->p[0], P[i]->p[1], tmpl)
    VecSub[P[i]->p[2], P[i]->p[1], tmp2)
    VecCross(tmp1, tmp2, N[i]);
    VecNormalize[N[i]);
    if (negflag) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           max(maxs[0]-mins(0], maxs(1]-mins(1])
                                                                                                                                                                                                                                                                                                                                                                                                                                               v1(1) - v2(1)[0) + v2(1)[1) +v2(1)[2];
v1(1) - v1(1)/3.;
                                                                                                                                                 print("shifts %f %f \n", shiftx, shifty);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          printf("shifts %f %f \n", shiftx, shifty);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - - N[1](0);
N(1](1) - - N(1](1];
N(1](2] - - N(1](2];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max = max(maxs[0]-mins[0], maxs[1]

Max = max(Max, maxs[2]-mins[2]);

shiftx = 0.5*(maxs[0]+mins[0]);

shifty = 0.5*(maxs[1]+mins[1]);

scal_par = Max/2.0;
                           for (1 = 0; 1 < npoints; i++) {
tempo=v(i)[1];
v(i)[0, = v(i)[0] - shiftx;
v(i)[1] = tempo - shifty;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f(N[1](0] < 0.)N[1](0]
1f(N[1](1] < 0.)N[1](1]
1f(N[1](2] < 0.)N[1](2)
                                                                                                                                                                                     - 0; i < npolys; i++) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for (1 - 0; i < npolys; i++) |
N1[i][0] - 0.0;
N1[i][1] - 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*mins[2]=0;*/
scal=ncol/(maxs[2]-mins[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N(1)(0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e s se (
                                                                                                                                                                                       for (1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for (1
```

```
geomv.c
```

```
v3f (P[1]->p[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for (1 = 0; 1 < npolys; 1++) (
                                                                                                                                                                                                                                                                                  for (1 = 0; 1 < npolys; 1++) |
                                                endclosedline()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         endpolygon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ()uobilodubq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                c3f (yelvec )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        endpolygon()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1mbind (MATERIAL, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lmbind(LIGHTO, 1);
lmbind(LMODEL, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          def_simple_light_calc()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             use_simple_light_calc()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Imbind (MATERIAL, 1);
                                                                                                                                                                          lmbind(LIGHTO, 0);
lmbind(LIGHT1, 0);
lmbind(LIGHT2, 0);
lmbind(LMODEL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          swapbuffers()
                                                                                                                                                        Imbind (MATERIAL, 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1f(temp2 || temp0 )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1mbind(IMODEL, 1);
                                                                                                                                 if (temp3 -- 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              make_reset();
                                                                                                                                                                                                                                                                                                       •
                                                                                                                                                                                                                                                                                                                                                                    :
                                                                                                                                                                                                                                                                                                                 int 1, j,col_ind;
int temp0,temp1,temp2,temp3,tumb1,editPa1,getPos,savePos;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for (1 = 0; 3 < P[1] -> p_nsides; 3++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                xmouse = PNL_ACCESS (Mouse, myMouse, x);
ymouse = PNL_ACCESS (Mouse, myMouse, y);
/*get_palette();*/get_surface();
sprintf(str,"%s%s %d %s",PATH,"mycedit",ncol,"6");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*translate (-1.0*shiftx, -1.0*shifty, 0.0);*/
                                                                                  - 1 LCOLOR, 0.0, 0.0, 1.0, POSITION, 0.0, 0.0, 1.0, 0.0,
- ( LCOLOR, 1.0, 0 0,0.0,
POSITION, 0.0, 0.0, 1.0,0.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (savePos == 1.0) save_position();
if (getPos == 1.0) get_position();
if (savePict->val) save_picture();
                                                                                                                                                                                                                                                                                                                                                          float siz, shx, shy, x_sc, y_sc, z_sc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for (1 = 0; 1 < npolys; 1++) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(editPal == 1.0) system(str);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       savePos - savePosition -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*MakeLight (xmouse, ymouse); */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                editPal = editPalette ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   getPos - getPosition -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f (reset->val)make_reset1();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*c3f(blackvec) ;*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bgnclosedline ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If (box->val) Drawbox ();
                                                                                                                                                                                                                                                                                                                                                                                                       temp2=surface -> val;
                                                                                                                                                                                                                                                                            short xmouse, ymouse;
                                                                                                                                                                                                                                                                                                                                                                                                                           tempO-smooth -> val;
                                                                                                                             LANDLL );
                                                                                                                                                                                                                                                                                                                                                                                    templ-model -> val;
                                           LMNULL );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      siz - size -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          reshapeviewport();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   If (temp] "* 1) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 callobj(Vobj);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                   temp3-map -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          shx - shix ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             shy - shiy ->val;
                                                                                                                                                                                                                                                                                                char * str(100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 y_sc = ysc->val;
                                                                                                                                                                                                                                                      Mouse * mymouse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x_sc = xsc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 SC = 2SC->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MakeVobj();
caliobj(Vobjl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ...bind (MATERIAL, 0);
..rbind (LIGHTO, 0);
..rbind (LIGHTO, 0);
...bind (LIGHT2, 0);
..mbind (LMODEL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                c3f (backvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ChangeStack ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MakeLight1();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           zclear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clear();
                                                                                                                                                                      int tum , tumbl;
float sun2[]
                                                                                    float sun3[]
                                                                                                                                                                                                         DrawObject()
```

```
col_ind=(int) ((V1(1)-mins(?)) *scal);
col_ind=min(ncol-1, max(0, col_ind));
                                                                                                                               bgnpolygon();
for (j = 0; j < P[1] -> p_nsides; j++) (
col_ind=(int) ((v2[1][j]=mins[2])*scal);
col_ind=min(ncol-1,max(0,col_ind));
col_ind=min(ncol-1,max[0,col_ind));
col_ind=[is[color_palette[col_ind][0]);
v3f(P[1]->p[j]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(light1->val)imbind(LIGHTO, 1) ;else Imbind(LIGHTO, 0);
if(light2->val)Imbind(LIGHT1, 2) ;else Imbind(LIGHT1, 0);
if(light3->val)Imbind(LIGHT2, 3) ;else Imbind(LIGHT2, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for (3 = 0; 3 < P(1] -> p_nsides; 3++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if(temp2) n3f(N[1]);
if(temp0) n3f(N][P[1]->s[j]]);
                                                                 c3f(& (color_palette( col_ind)(0)));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lmdef(DEFWATERIAL, 1, 19, shinymaterial) ;
lmdef(DEFLIGHT, 1, 10, sunl) ;
lmdef(DEFLMODEL, 1, 0, NULL) ;
```

```
for(j = (int) (incol); j>= (int) (3*ncol/4); j-=) (
color_palette[j][l] = l = dxl*(j = (int) (3*ncol/4));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for() = ncol/2:j>= (int) (ncol/4);j--) (
color_palette[j][1] =1.0 = dxl*(j-ncol/4);
/* print[("%f %d %d \n", color_palette[j][1],1,j);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for(j =(int) (3*ncol/4); j>= (int) (ncol/4); j==) {
  color_palette[j][1] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   color_palette[j][l] = dx1*(j -(lnt) (ncol/2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for() = ncol; 3>= (int) (3*ncol/4) +1; 3--)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for(j = (int)(3*ncol/4);j>=ncol/2;j==)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for() =(int) (ncol/4); j>= 0;j==){
  color_palette(j)(1) = dx1*j;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    color_palette[j][1] = 1.0;
                                                                                                                                                                                                                                                                                                                     translate(-1.0,0.0,0.0);
rotate(-900,'y');
bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      color_palette[]][i] -0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float dx1;
for(1 = 0;1<3;1++)
for(j = 0;j<ncol;j++)
                                                                                                                               rotate(-900,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for(1 = 0;1<3;1++)(
                                         endclosedline();
                                                                                                                                                    bgnclosedline();
                                                                                                                                                                                                                                                            endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          endclosedline();
                                                                                                                                                                                                              v3f (kvadrat3);
v3f (kvadrat4);
v3f (kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                           v3f (kvadrat2);
                     v3f(kvadrat4);
                                                                                                                                                                          v3f(kvadrat1);
                                                                                                                                                                                          v3f (kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                       v3f(kvadrat1);
                                                                                                                                                                                                                                                                                                                                                                                                                                v3f (kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                    v3f(kvadrat4);
                                                                                                                                                                                                                                                                                                     pushmatrix();
                                                                                                         pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(1 -- 0) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f(1 -- 1) {
                                                               popmatrix();
                                                                                                                                                                                                                                                                               popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(1 -- 2) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 init_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dx1- 4./ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int 1, 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       char string1(5), string2(5), string3(5), string4(5);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  float kvadratl[] = {-0.5,-0.5,-0.5};
float kvadrat2[] = {-0.5,0.5,-0.5];
float kvadrat3[] = {0.5,0.5,-0.5};
float kvadrat4[] = {0.5,0.5,-0.5};
                                                                                                                                                                                                                                                                               tumbl - tumble -> val;
                                                                                                                                                                                                                                                                                                                                               exitmode - quit->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sprintf(string), "%s", "X");
sprintf(string2, "%s", "Y");
sprintf(string3, "%s", "2");
sprintf(string4, "%s", "0");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translate(0.0,0.0,1.0);
bgnclosedline();
v3f(kvadratl);
                                                                                                                                                                                                                                    reshapeviewport ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cmov (-0.47, -0.47, -0.47);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cmov (0.50, -0.47, -0.50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cmov (-0.50, 0.53, -0.50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cmov (-0.53,-0.53,0.53);
                                                                                                                                                                                                                  t () [dobane] () ;
                                                                                                                                 c3f (backvec);
                                                                                                                                                                                                                                                                                                     1f(tump) -- 1)
                                                                                                                                                                                                                                                            Drawobject ();
                                                                                                                                                                                                                                                                                                                           tum +- mm ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       charstr(stringl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 charstr (string2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             charstr (string3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      charstr (string4);
                                                                                                                                                                        zclear();
while('exitmode) {
                                                                                                                                                    clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      c3f(whitevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   v3f(kvadrat1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v3f(kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   v3f(kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pushmatrix();
                                                                                                           mmm-80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               popmatrix();
   int exitmode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Orawbox ()
                                         00 308 ()
                                                                                       int mmm;
```

```
float siz,shx,shy,x_sc,y_sc,z_sc;
float dis_tw1,the,ph;
float dis_tw1,the,ph;
float dis_tw1,the,ph;
float dis_tw1,the,ph;
float dis_tw1,the,float float float
                                                                                                                                                                                                                                                                                                                                                                                                                 fp = fopen("pnl_position","w");
fprincf(fp,"%f %f %f %f %f %f\n",slz,shx,shy,x_sc,y_sc,z_sc);
fprincf(fp,"%f %f %f \n",dis,twi,the,ph);
fclose(fp);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       loadmatrix(idmat);
ortho(-2.0,2.0,-2.0,2.0,-2.0);
/*perspective(fovy, 1.0, 0.1, k*k* Max+(1./ang)) ;*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                float slz, shx, shy, x_sc, y_sc, z_sc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ysc->val = y_sc;
zsc->val = z_sc;
distance =>val = dis
twist => val = twi
                                                                                                                                dis - distance ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Int temp0, temp1, temp2, temp3;
                                                                                                                                                                                    twi = twist -> val;
the = theta -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       theta -> val=the ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              makeobj(Vobjl - genobj() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     siz - size -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shx = shix ->val;
shy = shiy ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x_sc = xsc->val;
y_sc = ysc->val;
z_sc = zsc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       makeobj(Vobj = genobj());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    shix ->val = shx;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        shiy ->val - shy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               size->val = siz;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  xsc->val = x_sc;
                                                                                                                                                                                                                                                                                                                          th - phi ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   phi ->val- ph;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  closeob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            get_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      float x, y, z;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [close (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                int thetal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MakeVob )()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            scan((fp,"\f \f(",\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f));
scan((fp,"\f \f(",\eshinymaterial(\f),\eshinymaterial(\f));
scanf((fp,"\f \f(",\eshinymaterial(\f)),\eshinymaterial(\f));
scanf((fp,"\f \f(",\eshinymaterial(\f)),\eshinymaterial(\f));
scanf(\f(\f),\eshinymaterial(\f));
scanf(\f),\eshinymaterial(\f));
scanf(\f),\eshinymaterial(\f),\eshinymaterial(\f));
scanf(\f),\eshinymaterial(\f),\eshinymaterial(\f));
scanf(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f));
scanf(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymaterial(\f),\eshinymateria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 scanf(fp, "%f %f %f", &shinymaterial(1), &shinymaterial(2), &shinymaterial(3));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fscanf(fp, "%f %f", &color_palette{})[0], &color_palette{}][1],
&color_palette(}][2]);
ဖ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "def(DEFMATERIAL, 1, 19, shinymaterial) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           else (ncol = maxcol; init_palette();)
                                                                                                                                     for() - (int) (ncol/4); j>-0 ; j--) (
                                                                                                                                                                                                color_palette[j][]] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 loat siz, shx, shy, x_sc, y_sc, z_sc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         filE 'fp, 'fopen();
fp * fopen("color_palette","r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 scal-ncol/(maxs[2]-mins[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fscanf(fp, "%d", &ncol);
for() = 0;)<ncol; )++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - fopen("lighting", "r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               siz - size-> val;
shx - shix ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              x sc * xsc->val;
y sc * ysc->val;
z sc * zsc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    shy - shiy ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ndef (DEFLIGHT, 10, sunl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               loat dis,twi,the,ph;
tLE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mbind (MATERIAL, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11E *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mbind(LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        If (fp !- NULL) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ave_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    get_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ((th :-NOLL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    let_surface()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (close (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            close (fp);
                 geomv.c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 7:
```

```
if (xsc->active||ysc->active||zsc->active)scale (xsc->val,ysc->val,zsc->val);
                                                                                                                                               getsize(&xsize,&ysize);
out_rgb = PNL_ACCESS(Typein,inputStr,str);
sprintf(savePict,"%s%s %d %d %d %d ","scrsave ",out_rgb,xor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(size->active) scale(size->val,size->val,size->val);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(twist->active )rotate((short)twist -> val,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If (theta->active) rotate ((short) theta -> val,'2');
If (ph1->active) rotate ((short) ph1 -> val,'x');
                           char savePict(50), *out_rgb,outStr(20);
                                                                                                                                                                                                                                                                                                                                                       v->val - v->initval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILE *fp, *fopen();
int 1, j, temp2;
                                                                                                                                                                                                                            xor+xsize, yor, yor+ysize);
                                                                             long xor, yor, xsize, ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       loadmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ncol = maxcol;
                                                                                                                          getorigin (&xor, &yor);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              getmatrix (OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getmatrix (OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  negflag -- 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       loadmatrix(idmat);
                                                                                                                                                                                                                                                                              system(savePict);
                                                                                                                                                                                                                                                                                                                                                     #define RESET(v)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                RESET (distance);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     char * argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int dev;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        main(argc, argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESET (tumple);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESET (theta);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESET (twist);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       make_reset1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ChangeStack ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     short
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESET (size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESET (shix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESET (shiy);
                                                                                                                                                                                                                                                                                                                                                                                                     make_reset()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESET (ph1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESET (ysc);
RESET (zsc);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESET (xsc);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int arge ;
                      /*perspective(fovy, 1.0, 0.1, k*k* Max+(1./ang)) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mapw(Vob), xmouse, ymouse, 6wx1, 6wyl, 6wz1, 6wx2, 6wy2, 6wz2);
sunl(5) - wx2;sunl(6) - wy2;sunl(7) - 5.0°Max;
                                             polarview(distance->val,0.0 ,0.0 ,0.0);*/
ortho(-2.0,2.0,-2.0,2.0,-2.0,2.0);
                                                                                                                                                                                                                                                                                                                                              makeobj(sphere = genobj());
for(thetal = 0;thetal<3600;thetal = thetal+300) |
    rotate(300,'y');</pre>
                                                                                                                                                                                                                                                 scale (size->val, size->va, size->val);
                                                                                                                                                                                                                     translate(sh", shy, distance->val);
                                                                                             rotate((short)twist -> val,'y');
rotate((short)theta -> val,'z');
                                                                                                                                               rotate((short)phi -> val,'x');
                                                                                                                                                                      scale(x_sc,y_sc,z_sc);
rotate(tum,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Imdef (DEFLIGHT, 1, 10, sunl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lmdef(DEFLIGHT, 1, 10, sun1);
lmbind(LIGHT0, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              !mdef(DEFLIGHT, 3, 10, sun3);
imbind(LIGHT2, 3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lmdef(DEFLIGHT, 2, 10, sun2)
lmbind(LIGHT), 2);
loadmatrix(idmat);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Screencoord xmouse, ymouse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dakelight (xmouse, ymouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translate (wx2, wy2, wz2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sun2(5) - xlight2->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sun2(6) * ylight2->val;
sun2(7) * zlight2->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sun3[5] - xlight3->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sunl(5) * xlightl->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sunl(6) = ylight1->val;
sunl(7) = zlight1->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sun3(6) - ylight3->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sun3(7) - zlight3->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                scale (0.01,0.01,0.01);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             getorigin (&xor, &yor);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    xmouse - xmouse -xor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ymouse = ymouse -yor;
                                                                                                                                                                                                                                                                                                                                                                                                                       circ(0.0,0.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |mbind(LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      float wxl,wyl,wzl;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            c3f (6 (sun1(11));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   callobj(sphere);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                save_picture()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               long xor, yor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MakeLight1()
                                                                                                                                                                                                                                                                        clossobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    closeobj();
```

ω

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geomv.c
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if (argc == 2)
    negflag = 1;
printf("td negflag \n",negflag);
init_palette();
Radobject();
Repaspect(1, 1);
foreground();
winopen("surface");
RCBmode();
doublebuffer();
gconfig();
isetdepth(0, 0x7FFFFF);
zbuffer(TRUE);
mmode(MVIEWING);
pnl_medredraw();
pnl_medredraw();
cale(size->val,size->val);
/*translate(-1.0*shiftx,-1.0*shifty,0.0);*/
getmatrix(oldMatrix);
brawobject();
add_evert(winget(),REDRAW,ANY,Do_JOB(),0);
add_evert(winget(),REDRAW,ANY,Do_JOB(),0);
```

```
Actuator * editPalette,* distance, * theta, * phi ,* model, *xlightl, *ylightl,
*zlightl, *xlight2, *ylight2, *zlight3, *ylight3, *zlight3, *surface,
*zsc, *map, *twist, *size, *shix, *shiy, *smooth, *xsc, *ysc, *reslight, *savePosition,
*getPosition, *myMouse, *savePict, *inputStr, *box, *reset, *quit, *ll,*l2,*l3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v = pnl mkact (pnl radio button);\
v->labeltype = PNL LABEL BOTTOM;\
v -> label = n;\
                                                                (a) : (b) )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v = pnl_mkact(pnl_button);\
v->labeltype = PNL_LABEL_BOTTOM;\
                                                                                                                                                        MKHSLIDER(v, n, b, t, 1)\
mkact(pnl_vslider);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BUTTON3 (v, n, b, t, 1) \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BUTTON (v, n, b, t, 1) \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v -> label * n ; \
v -> minval * b ; \
v -> maxval * t ; \
v -> val * i; \
v -> x = x ; v -> y * y ; \
v -> h * hi; v -> x * x; \
pnl_addact(v, p)
                                                                                                                                                                         v = pnl_mkact (pnl_vslider)
                                                                                                                                                                                                                                                                                                                                                                    LABEL(v,n)\
v = pnl mkact(pnl_label);\
v->label = n;\
                                                                                                                                                                                                                                                                                                  /: K = K <- > : X = X <- >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       v -> x = x ; v -> y = y ; \
v -> h = h1;v -> w = w;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   v -> x = x ; v -> y = y ; \
v -> h = h1;v -> x = x;\
                                                                ((a) < (b) ?
((a) > (b) ?
                             V1[SIZE] , V2[SIZE][3];
                                                                                                                                                                                                             v -> minval = b ;\
v -> maxval = t ;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 v -> minval = b; \
v -> maxval = t; \
                                                                                                                                                                                           v -> label * n;/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pnl_addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *11ght1, *11ght2, *11ght3;
                                                                                                                                                                                                                                                                                                                   pnl addact (v, p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /: 1 = 1sv <- v
                                                                                                                                                                                                                                          v -> val * 1 ;/
                                                                                                                                                                                                                                                                V->W = 0.6; \
                                                                                                                                                                                                                                                                                   V->h = 4.0;\
                                                                                                                                                                                                                                                                                                                                                                                                                            /:x - x<-^
                                                                                                                                                                                                                                                                                                                                                                                                                                          / · / · / · / · /
                                                                   #define min(a, b)
#define max(a, b)
                                                                                                                       float Max , scal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 •define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             define
                                                                                                                                                          • define
                                                                                                                                                                                                                                                                                                                                                                         #define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fdefine
                                  float
                                                                                                                                                                          /*size of matrix in the stack*//*size of sun file*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               p -> p - (Vec *) calloc(nsides, sizeof(Vec ));
p -> s - (int *) malloc(3* sizeof(int ));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          p - (Polygon *) malloc (sizeof(Polygon))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             npoints, npolys;
mins = (1000000, 1000000, 1000000);
maxs = (-1000000, -1000000, -1000000);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      backvec[] = [0.8, 0.8, 0.8] ;*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   backvec(] = (0., 0., 0.);
blackvec(] = (0.0, 0.0, 0.0);
redvec(] = (1.0, 0.0, 0.0);
whitevec(] = (1.0, 1.0, 1.0);
yelvec(] = (1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matrix 1dmat = (1.0, 0.0, 0.0, 0.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             : saples .. usides ;
                                                                                                                                                                                                                                                                                                  color_palette(maxcol)(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yatrix OldMatrix , NewMatrix;
                                                                                                                                                                                                                                                                                                                                                          float wx2,wy2,wz2,scal_par;
typedef float Vec(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N(SIZE),N1(SIZE);
                                                                                                                                                                                                                                                                                                                                                                                                                             p_nsides;
                                                                                                                                                                                                                                                                                                                                         Object Vobj, sphere, Vobjl;
                                                                                                                                                                                                                                                  500000
                                                                                                                                                                                                                                                                                                                                                                                                                                                 . s.
                                                                                                                                                                            #define MATRIXSIZE 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Polygon . p ;
                                                                                                                                                             #define maxcol 256
                                                                                                                                                                                                                3.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . P(SIZE);
                                                                                                          #Include <device.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MakePolygon (nsides)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return p;
                                                                                                                         #includecstring.h>
#include "cpath.h"
                                     #include <stdio.h>
                                                                                       finclude "panel.h"
                                                       #include <math.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          V{S12E) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        negflag ;
                                                                                                                                                                                                                                                                                                                                                                                                             typedef struct (
                                                                        finclude <gl.h>
geomview.c
                                                                                                                                                                                                                                                    SIZE
                                                                                                                                                                                                                                ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ve
c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Int
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Polygon ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        · nopyloc
                                                                                                                                                                                                                                                                                                                         int ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Polygon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*float
                                                                                                                                                                                                                   define
                                                                                                                                                                                                                                    define
                                                                                                                                                                                                                                                      define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              int
/ec
/ec
```

gromview.c

```
* p;
x = 0.0, y = 0.0, sep = 0.6, sep1=1.1 , sep2 = 0.4;
h1= 0.5, w = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BUTTON3 (savePosition, "Save Position", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BUTTON3 (getPosition, "Get Position", 0.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BUTTON3 (editPalette, "Edit Palette", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                       x = 4.5;y = quit->h*sep;
BUTTON3(savePict, "SAVE PICTURE", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MKHSLIDER (twist, "Y ", -1800.0, 1800.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKHSLIDER(ph1, "X ", -1800.0,1800.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MKHSLIDER (theta, "2 ", -1800.0,1800.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x**theta->w+0.3;
MKHSLIDER(shly, " Y", -1.0*Max, Max, 0.0)
x**theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKHSLIDER(shix, " X", -1.0 * Max, Max, 0.0)
                                                                                                                                                                                                                                                                                                                             inputStr = pnl mkact(pnl typein);
inputStr->labeltype = PNL LABEL_TOP_LEFT;
inputStr ->label = "Save as: ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MKHSLIDER (distance, " 2", -2.0,2.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BUTTON2 (11ght3, "BLUE LIGHT", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x = 3.5;
BUTTON2 (11ght 2, "RED LIGHT", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MKHSLIDER(size, "SIZE", -1.0, 1.0, 0.0)
y+=size->h +1.5*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "2 ",-1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BUTTON2 (119ht1, "LIGHT", 0.0, 1.0, 1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BUTTON2 (Dox, "SHOW BOX", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MKHSLIDER (ysc, "Y ",-1.0, 1.0, 0.0)
x+=theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKHSLIDER(xsc, "X ",-1.0, 1.0, 0.0)
x+mtheta=>w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BUTTON3 (reset, "RESET", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                       InputStr->x = 0.0; InputStr->y = y;
                                                                                                                                                                                          p -> ppu = 36.0;
BUTTON3(qult,"QUIT",0.0,1.0,0.0);
                                                                                                                                                                            -> label - "Control Fanel v.10"
                                                                                                                                                                                                                                                                                                                                                                                                                                 pnl_addact (inputStr,p);
y += inputStr->h+2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LABEL (11, "TRANSLATE");
                                                                                                                                                                                                                                                                                                        y+= savePict ->h+sep;
                                                                                                                                                       _mkpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +=reset->h+2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LABEL (12, "ROTATE");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LABEL (13, "SCALE");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              y+-h1+sep;x = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 0.5;y+- w+sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MKHSLIDER(zsc, "Z
x+*theta->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      x+*theta->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    x+=ph1->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x+-ph!->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x+=ph1->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  y+=h1+sep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x = 5.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8.0;
                                                                                                                                                       bu I
                                                                                                    float
                                                                            float
                                                     Panel
DefPanel()
```

```
for (1 = 0; 1 < npoints; 1++) {
    scanf("*f *f *f\n", &(V(1)(0)), &(V(1)(1)), &(V(1)(2));</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fprintf(stderr, "%d points, %d polys\n", npoints, npolys)
*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BUTTON (smooth, "Gouraud Lighting", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BUTTON3 (reslight, "RESET LIGHT", 0.0,1.0,0.0);
y+=h1+1.5*sep;x = 2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BUTTON (model, "Wireframe", 0.0, 1.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            y +=h1+1.5*sep;x = 2.0;
BUTTON(surface, "Lighting", 0.0, 1.0, 0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int 1, 1, 1, ku, nverts, indl[3], nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  scanf ("td td\n", & npolys, & npoints!
x = 0.0;
MKHSLIDER(xlightl,"x",-1.0,1.0,0.0);
                                            x+mtheta->w+0.3;
MKHSLIDER(ylight1,"Y",-1.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                      MKHSLIDER (x11ght3,"X",-1.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                               MKHSLIDER (ylight3, "Y", -1.0, 1.0, 0.0);
                                                                                                                         MKHSLIDER (z11ght1, "2", -1.0, 1.0, 1.0);
                                                                                                                                                                                                                                 MKHSLIDER (y11ght2, "Y", -1.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                       MKHSLIDER(zlight2,"2",-1.0,1.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MKHSLIDER (zlight3, "2", -1.0, 1.0, 1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for (3 = 0; 3 < 3; 3++) (
mins(4) = 1e10;
maxs(5) = -1e10;
                                                                                                                                                                               MKHSLIDER(x11ght2,"X",-1.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BUTION (map, "3D Map", 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               myMouse = pnl_mkact (pnl_mouse);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for (1 = 0; 1 < npolys; 1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float shiftx , shifty, shiftz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pnl_addact (myMouse, p);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              y+=211ght2->h+1.5*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tmpl, tmp2;
                                                                                                                                                                                                                                                                                                                                                                                                                             x+=theta=>w+0.3;
                                                                                                                                                                                                                                                                                                                     x+=theta->w+0.6;
                                                                                                                                                                                                          x+=theta->w+0.3;
                                                                                                                                                                                                                                                              x+=theta->w+0.3;
                                                                                                                                                                                                                                                                                                                                                                         x+=theta->w+0.3;
                                                                                                     x+=theta->w+0.3;
                                                                                                                                                      x+=theta->w+0.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - 2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 6.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  × = 6.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ReadObject ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٠,
```

P[1] = MakePolygon(3); for (3 = 0; 3 < 3; 5++) {

```
float 1;
1 * (float) sqrt(a(0) * a(0) * a(1) * a(1) * a(2) * a(2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        float shinymaterial[] = ( SPECULAR, 1.0, 0.2, 0.8, EMISSION , 0.8,0.9,0.0, DIFFUSE, 0.8, 0.0, 0.0, AMBIENT, 0.2, 0.0, 0.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c(0) = a(1) * b(2) - b(1) * a(2);
c(1) = - (a(0) * b(2) - b(0) * a(2));
c(2) = a(0) * b(1) - b(0) * a(1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LMNULL 1;
LCOLOR,1.0, 1.0,1.0,
POSITION, 0.0, 0.0, 1.0,0.0,
LMNULL 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SHININESS, 3.0,
                                                                                                                                                                       for (1 - 0; 1 < npolys; i++) | for (3 - 0; 3< 3; 3++) | for (1 - 0; 3< 3; 3++) | for (1 - 0; 3) | for (1 - 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                              or (1 = 0; 1 < npolys; 1++)
VecNormalize(N1[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c(0] = a(0) = b(0);
c(1] = a(1) = b(1);
c(2] = a(2) = b(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                - a(0)
- a(1)
- a(2)
              N1[1][1] - 0.0;
N1[1][2] - 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a(0) /- 1;
a(1) /- 1;
a(2) /- 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ์
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       float sunl() = (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VecSub(a, b, c)
Vec a, b, c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VecCross(a, b,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VccNormalize(a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Veca, b, c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a (0)
a (1)
a (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VecNegate (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vec a ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vec a ;
scanf("%d", &ind1[j]);

1= ind1(j]=1;
P[i]=>s(j]==1;
P[i]== 0; ku < 3; ku++) {
    mins(ku) = min(mins(ku), V[i](ku));
    maxs(ku) = max(maxs(ku), V[i](ku));
}</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for (1 = 0 ; i < npolys ; i++) {
    VecSub(P[i] -> p[0], P[i] -> p[1], tmpl) ;
    VecSub(P[i] -> p[2], P[i] -> p[i], tmp2) ;
    VecCross(tmb1, tmp2, N[i]) ;
    VecNormalize(N[i]) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          If (N(1)(0) < 0.)N(1)(0) = - N(1)(0);

If (N(1)(1) < 0.)N(1)(1) = - N(1)(1);

If (N(1)(2) < 0.)N(1)(2) = - N(1)(2);
                                                                                                                                                                                                                                                                                                                                                                                                              Max = max(maxs(0)-mins(0), maxs(1)-mins(1]);
Max = max(Max, maxs(2)-mins(2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       V1[1] = V2[1][0] + V2[1][1] +V2[1][2];
V1[1] = V1[1]/3.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    = -N(1)(0); 
N(1)(1) = -V(1)(1); 
N(1)(2) = -N(1)(2); 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for (ku = 0; ku< 3; ku++)
(P[1]->p[3]) (ku) = V[1] [ku];
V2[1][3] = V[1][2];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for (j = 0; j < 3; j++) (
lar (j = 0; j < 3; j++) (
l=P(l]->s(j);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for (1 = 0; 1 < npoints; 1++) (
V(1)(0) = V(1)(0) = shiftx;
V(1)(1) = V(1)(1) = shifty;
V(1)(2) = V(1)(2) = shiftz;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          shiftx = 0.5 * maxs[0] + mins[0];
shifty = 0.5 * (maxs[1] + mins[1]);
shiftz = 0.5 * (maxs[2] + mins[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for (1 = 0; 1 < npolys; 1++) (
N1(1)(0) = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            scal = ncol / (maxs (2) - mins (2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   maxs(?) = maxs(2)-shiftz;
mins(2) = mins(2)-shiftz;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (negflag) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*mins(2)*0;*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                scal_par = Max/2.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N(1)(0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for (1
```

geomview.c

```
if(surface->val) n3f(N[1]);
if(smooth->val) n3f(N1[P[1]->s[1]])
bgnpolygon();
for () = 0; ) < P[1] -> p_nsides; )++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lmdef(DEFWATERIAL, 1, 19, shinymaterial) ;
imdef(DEFLIGHT, 1, 10, sunl) ;
imdef(DEFLMODEL, 1, 0, NULL) ;
                                                                                                                                                                                                                                                                                                                                                                                    v3f (P{1}->p(J)) ;
                                                                                                                                                                                                                                                                                                                                   c3f (yelvec );
                                                                                                                                                                                                                                                                                                                                                                                                                           endpolygon();
                                                                                                                          endpolygon();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lmbind(MATERIAL, 1);
lmbind(LIGHTO, 1);
lmbind(LMODEL, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exitmode = quit->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pnl_dopanel();
reshapeviewport();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use_simple_light_calc()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              def_simple_light_calc()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c3f (backvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DrawObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             swapbuffers()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   zclear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     while (!exitmode) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             make_initpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             int exitmode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 00_308()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for () = 0; } < P(1) -> p_nsides; )++) {
    v3f(P[1]->P[3]);
                                                                                                                                                                                                                                                                                      int 1, 1,col_ind;
get_surface();
sprintf(str,"%s%s %d %s",PATH,"mycedit",ncol,"%");
                                                                                                                                                                                                                                                                                                                                   [[[editPalette>>val == 1.0] system(str);
[f[savePosition-> val == 1.0] get_position();
[f[savePict->val] == 1.0] get_position();
[f[savePict->val] save_plcture();
[f[reset->val] make_reset();
[f[resign] hake_reset();
[reshapeviewport();
] c3f(backvec);
                        - ( LCOLOR, 1.0, 0.0,0.0,
POSITION, 0.0, 0.0, 1.0,0.0,
                                                                                            - ( LCOLOR,0.0, 0.0,1.0,
POSITION, 0.0, 0.0, 1.0,0.0,
LANULL );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - 0 ; 1 < npolys ; 1++) [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (model->val -- 1) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    c3f (redvec) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         scale (2.0, 2.0, 2.0);
                                                                                                                                                                                                                                                       short xmouse, ymouse;
                                                             LMNULL ) ;
                                                                                                                                                                                                                                     Mouse * mymouse;
                                                                                                                                                                                                                                                                       str(100);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    callobj (Vobj1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ChangeStack ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mbind (MATERIAL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mbind (MATERIAL, 0) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MakeLight 1();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mbind (LIGHTO, 0);
mbind (LIGHT), 0);
mbind (LIGHT2, 0);
rbind (LMODEL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f (map->val == 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | [ (box->val) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drawbox();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mbind (Lighto, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mbind(LIGHT1, 0);
moind(LIGHT2, 0);
mbind(LMODEL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MakeVob 1();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     zclear()
                                                                                                                                                                   int tum , tumbl;
                             (loat sun2()
                                                                                               (loat sun3()
                                                                                                                                                                                                     DrawObject()
```

for (1 - 0; 1 < npolys; 1++) (

```
for(j = (int) (ncol); j>= (int) (3*ncol/4); j-=) (
color_palette[j][l] = l = dxl*(j = (int) (3*ncol/4));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(j = ncol/2;j>= (int) (ncol/4);j-=) {
  color_palette[j]{[i] =1.0 = dxl*(j-ncol/4);
  /* printf("%f %d %d \n", color_palette[j][l],j);"/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for(j =(int) (3*ncol/4); j>= (int) (ncol/4);j==)(
color_palette(j)(1) = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  color_palette[j][l] = dxl*(j = (int) (ncol/2));
                                                                                                                                                                                                                                                                                                                                                1f(1 -- 0) {
   for(j - ncol; j>- (int) (3*ncol/4) +1; j--) {
                                                                                                                                                                                                                                                                                                                                                                                                                                    for() - (int)(3*ncol/4); 3>-ncol/2; 3--)(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for(j = (int) (ncol/4); j>= 0;j--){
  color_palette(j)[i] = dxl*j;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for() = (int)(ncol/4); 1>*0; 1--1 {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               color_palette[][[] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                      color_palette[]][1] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fp = fopen("color_palette","r");
                                                                                                                                                                                                                                                        color_palette[]][[] -0.0;
                                                                                                                                                                                                                                        for (3 = 0; 3<ncol; 3++)
                                                                                                                                                                                                                                                                                                        for(1 = 0;1<3;1++)(
dxl= 4./ncol;
                                          endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE *fp, *topen();
                                                                                                                                                                                                                      for (1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1f(fp != NULL)(
v3f (kvadrat3);
                    v3f (kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(1 -- 1) (
                                                              popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(1 -- 2) {
                                                                                                                                init_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    get_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          fclose (fb);
                                                                                                                                                                                                float dxl;
                                                                                                                                                                        Int 1, 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Int );
                                                                                                                                                                                                                                                                                    char string1(5), string2(5), string3(5), string4(5);
                                                                                    float kvadrati[] = [-0.5,-0.5,-0.5];
float kvadrat2[] = [-0.5,0.5,-0.5];
float kvadrat3[] = [0.5,0.5,-0.5];
float kvadrat4[] = [0.5,-0.5,-0.5];
                                                                                                                                                                                                                                                                                                                            sprint f(stringl, "%e", "X");
sprint f(string2, "%s", "Y");
sprint f(string3, "%s", "2");
sprint f(string4, "%s", "0");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translate(-1.0,0.0,0.0);
rotate(-900,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pushmatr1x();
translate(0.0,0.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cmov (-0.47, -0.47, -0.47);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cmov (0.50,-0.47,-0.50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cmov (-0.50, 0.53, -0.50);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cmov (-0.53, -0.53, 0.53);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rotate (-900,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      charstr (stringl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 charstr (string2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           charstr (string3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bgnclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           endclosedline();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       charstr (string4);
                                                                                                                                                                                                                                                                                                                                                                                                                    c3f (whitevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v3f(kvadratl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          v3f(kvadrat1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v3f(kvadrat3);
v3f(kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v3f(kvadrat1);
v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   v3f(kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v3f (kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v3f (kvadrat3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v3f(kvadrat1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v3f(kvadrat2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v3f (kvadrat4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 popmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 popmatrix();
                                                                                                                                                                                                                                            Drawbox ()
```

```
fscanf(fp,"%f ", & (sun3{1}));
fscanf(fp,"%f %f ", & (light1->val), & (light2->val), & (light3->val));
                                                                                                                                                                      ; else lmbind (LIGHTO, 0); ; else lmbind (LIGHT1, 0);
                                                                                                                                                                                                                          ;else Imbind (LIGHT2, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for(thetal = 0;thetal<3600;thetal = thetal+300) {
    rotate(300,'y');</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ortho(-2.0, 2.0, -2.0, 2.0, -2.0, 2.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                scale (x_sc, y_sc, z_sc);
translate (shx, shy, distance->val);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rotate((short)twist -> val,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rotite((short)theta -> val,'z');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rotate((short)phi -> val,'x');
                                                                                                                                                                         325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    float siz, shx, shy, x_sc, y_sc, z_sc;
                                                                                                                                                                                               if (light2->val) lmbind (LIGHT),
                                                                                                                                                                                                                          if (light3->val) imbind (LighT2,
                                                                                                                                                                      lf(lighti->val)lmbind(Lighto,
                                                                                                               lmdef (DEFLIGHT, 2, 10, sun2);
lmdef (DEFLIGHT, 3, 10, sun3);
                                                                                  lmdef(DEFLIGHT, 1, 10, sun1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               makeobj(Vobj1 = genobj() );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 makecbj(sphere = genobj());
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   siz - size -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Screencoord xmouse, ymouse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x_sc = xsc->val;
y_sc = ysc->val;
z_sc = zsc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            makeobj(Vobj = genobj());
callobj(Vobj1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            shx = shix ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     shy - shiy ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                loadmatrix(idmat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Makelight (xmouse, ymouse)
                                                                                                                                                                                                                                                      loadmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            getorigin (&xor, &yor);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        xmouse - xmouse -xor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ymouse - ymouse -yor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              circ(0.0,0.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 closeob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   float wxl,wyl,wzl;
                                                                                                                                                                                                                                                                                    pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float x, y, 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             long xor, yor;
                                                                fclose (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int thetal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    closeobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     closeob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MakeVobj()
                                                                                                                                                                                                                                                                                                                                                                                                                                                        fscant(fp, "ff if it", tshinymaterial[]], tshinymaterial[2], tshinymaterial[3]);
fscant(fp, "ff it it", tshinymaterial[5], tshinymaterial[7]);
fscant(fp, "ff it it", tshinymaterial[9], tshinymaterial[10], tshinymaterial[11]);
fscanf(fp, "ff it it, tshinymaterial[13], tshinymaterial[14], tshinymaterial[15]);
fscanf(fp, "ff it it, tshinymaterial[15], tshinymaterial[14], tshinymaterial[15]);
Indef(DEFMATERIAL, 1, 19, shinymaterial);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 fprint(ffp, "%f ", sun3[1]);
fprint(ffp, "%f %f %f ", light1->val, light2->val, light3->val);
                                                                                                   else Incol = maxcol; Init_palette();)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fscanf(fp,"%f", & (OldMatrix(1)));
for(1 = 0;1< LIGHTINDEx;1++)
fscanf(fp,"%f", & (sun1(1));
for(1 = 0;1< LIGHTINDEx;1++)
fscanf(fp,"%f", & (sun2(1));
for(1 = 0;1< LIGHTINDEx;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for (1 - 0; 1 < MATRIXSI2E; 1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fp = fopen("pnl_position","w");
for(t = 0;1< MATRIXSI2E;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fprintf(fp, "%f ", OldMatrix(i]);
for(i = 0;1< LIGHTINDEx;1++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               filE 'fp, 'fopen();

'p = fopen("pnl_position", "r");

'f(fp != NULL) {
scal =ncol/ (maxs(2)-mins(2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fprintf(fp, "%f ", sun2[1]);
cr(! ~ 0;!< LIGHTINDEX;!++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (or (1 - 0;1< LIGHTINDEX;1++)
                                                                                                                                                                                                                                                                                                                                                                                                    fp = fopen("lighting","r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mdef(DEFLIGHT, 1, 10, sunl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (printf (fp, "*f ", sun1(1));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Imbind (MATERIAL, 1)
                                                                                                                                                                                                                                                                                                                         FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mbind(LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE * (p, * fopen ();
                                                                                                                                   pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          save_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  jet_position()
                                                                                                                                                                                                                                                                                                                                                                                                                                         ((tb :-NULL)
                                                                                                                                                                                                                                            get_surface()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (close (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   close (fp);
```

RESET (zlightl);

```
geomview.c
```

```
scale (pow (10, size->val), pow (10, size->val), pow (10, size->val));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               getsize(&xsize,&ysize);
out_rgb = PNL_ACCESS(TypeIn,InputStr,str);
sprintf(savePict,"%s%s %d %d %d %d ","scrsave ",out_rgb,xor,
mapw (Vobj, xmouse, ymouse, 6wxl, 6wyl, 6wzl, 6wx2, 6wy2, 6wz2);
                      sun1{5} = wx2;sun1{6} = wy2;sun1{7} = 5.0*Max;
Imdef(DEFLIGHT, 1, 10, sun1);
Imbind(LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         char savePict(50), *out_rgb, outStr(20);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    v->val - v->initval
                                                                                                                                                                                                                                                                                                                                                                                                                                           lmdef(DEFLIGHT, 1, 10, sunl);
lmbind(LIGHTO, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lmdef(DEFLIGHT, 2, 10, sun2);
lmbind(LIGHT1, 2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lmdef(DEFLIGHT, 3, 10, sun3);
lmbind(Light2, 3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             long xor, yor, xsize, ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             xor+xsize, yor, yor+ysize);
                                                                                                                   translate (wx2, wy2, wz2);
scale (0.01, 0.01, 0.01);
c3f (4 (sun1 {1}));
                                                                                                                                                                                                                                                                                                                                                                                           sunl(6) * ylight1->val;
sunl(7) * zlight1->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sun2[6] = yllght2->val;
sun2[7] = zllght2->val;
                                                                                                                                                                                                                                                                                                                                                                       sunl(5) * xlight1->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sun2[5] - xllght2->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sun3(5) - xlight3->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sun3(6) * ylight3->val;
sun3(7) * zlight3->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           getorigin (exor, eyor);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         getmatrix (OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        system(savePlct);
                                                                                                                                                                                            callobj(sphere);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  define RESET(v)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESET (xlightl);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         callobj(Vobjl);
                                                                                             pushmatrix();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              save_picture()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 reset_11ght ()
                                                                                                                                                                                                                     popmatrix();
                                                                                                                                                                                                                                                                                                                       MakeLight1()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          make_reset()
```

```
If (size->active ) scale (pow (10, size->val), pow (10, size->val), pow (10, size->val));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f (xsc->active) |y.c->active||zsc->active|scale (pow (10, xsc->val),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (shix->active ||shiy->active ||distance ->active)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(twist->active )rotate((short)twist -> val,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (theta->active) rotate ((short) theta -> val,'2');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (phi->active) rotate((short)phi -> val,'x');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translate (shix->val, shiy->val, distance->val);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pow(10, ysc->val), pow(10, zsc->val));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         negflag - 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       keepaspect (1, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               multmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          init palette();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ncol - maxcol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f (argc -- 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ReadObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               negflag -- 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    getmatrix(OldMatrix);
                                                                                                                                                                                                                                                 make_initpanel()
                                                                                                                                                                                                                                                                                     RESET (distance);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pnl_drawpanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              char * argv[];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        main(argc, argv)
                                                                                               RESET (211ght3);
                                                                                                                                                                                     pnl_drawpanel()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int dev;
RESET (xlight2);
                   RESET (ylight2);
RESET (zlight2);
                                                       RESET (x11ght 3);
                                                                            RESET (ylight3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         callob; (Vob;11);
                                                                                                                      RESET (11ght 1);
                                                                                                                                         RESET (119ht 2);
                                                                                                                                                              RESET (11ght 3);
                                                                                                                                                                                                                                                                                                              RESET (theta);
                                                                                                                                                                                                                                                                                                                                                    RESET (twist);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ChangeStack ()
                                                                                                                                                                                                                                                                                                                                                                                                           RESET (shiy);
                                                                                                                                                                                                                                                                                                                                                                       RESET (size);
                                                                                                                                                                                                                                                                                                                                                                                          RESET (shix);
                                                                                                                                                                                                                                                                                                                               RESET (ph1);
                                                                                                                                                                                                                                                                                                                                                                                                                                 RESET (xsc);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           int argc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESET (ysc);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESET (2SC);
```

```
Defpanel();
pnl_needredraw();
def_simple_light_calc();
callobj(Vobj1);
scale(pow(10,size->val),pow(10,size->val));
getmatrix(OldMatrix);
                                                                                                                                                                                                                                                                                                       Drawobject();
add_event(winget(), REDRAW, ANY, Do_JOB(), 0);
qdevice(REDRAW);
                                                                                                  lsetdepth.0, 0x7FFFFF) ;
zbuffer(TRUE) ;
foreground();
winopen("surface");
RGBmode();
coublebuffer();
gconflg();
                                                                                                                                                   mmode (MVIEWING);
```

mycedit.c

include < stdlo.h>

```
new_palette[]*coef+1][[] * color_palette[][[] + (] * (color_palette[]+1][[] -
color_palette[][[]]/coef);
                                                                                                                                                                                                                                                                                                                                          new_palette(j)(i) = color_palette(j*coef)(i) ;
                                                                                                                                                                         color_palette[j][i] = new_palette[j][i];
                                                                                                                                                                                                                                                                                                                                                                                                                          color_palette[j][i] - new_palette[j][i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           órtho (0.0,1.0,0.0,1.0,-1.0,1.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                winopen("color_edit");
                                                                                                                for ($ = 0; $<ncol; $++)
for(1 = 0; 1<coef; 1++)</pre>
                                                                                                                                                       for(1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE *fp1, *fp2, *fopen();
                                                                                                                                                                                                                                                            1f(ncol_old>ncol) {
  coef = ncol_old/ncol;
  for (3 = 0; 3<ncol; 3++)</pre>
         if (moda == BITS)
                                                                                                                                                                                                                                                                                                                                                                                        for (j = 0; j<ncol; j++)
for (i = 0; i<3; i++)</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ncol = atol(argv[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qdevice (RIGHTMOUSE);
qdevice (LEFTMOUSE);
                                                                                                                                                                                                                                                                                                                            for (1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             while (!qtest ()) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               init_palette (ncol);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      while (!exitmode) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             processinput();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      winclose (191d);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       keepaspect (1, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drawob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   char *argv();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              main(argc, argv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       c3f (whitevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Initialize();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (oreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nitialize()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drawob)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gconfig();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     short 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   int argc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  lgld
                                                                                                                                                                                                                                                                                                                                                                                                                                                         short k.kold ;/*number of the changing element of the palette*/short m ; /*number of the changing element of light. param*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 float color palette(maxcol](3);
float lightvec[paramnum][3], shine;
ong igid, exitmode, mode, moda;
int menu, menul, menul, menul, submenul, ncolmenul;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         new_palette{j*coef*l]{i} = color_palette[j][i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     new_palette[j*coef+1][i] = color_palette[j][i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (loat range,rgbvalWidth,xRectSide,delta,dx,dx2,side; int ncol,index;
                                                                                                                                                                                                                                                                                                           float whitevec[] = [1.0,1.0,1.0];
float greenvec[] = [0.0,1.0,0.0];
float bluevec[] = [0.0,0.0,1.0];
float redvec[] = [1.0,0.0,0.0];
float grayvec[] = [0.7,0.7,0.7];
                                                                                                                                                                                                                                                                                             float blackvec() = (0.0,0.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .nt ncol_old;
(loat new_palette(maxcol)[3];
.nt 1, 1, 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .f(ncol_old < ncol)[
coef = ncol/ncol_old;
for() = 0; j<ncol_old; j++)
for(1 = 0; l< coef; l++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if (moda -- PIECES)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       If (moda -- PIECES)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         xo, yo, xslze, yslze;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for (1 = 0;1<3;1++) (
                                                                               finclude<fmclient.h>
                   #include<fmclient.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                init_palette(ncol);
                                                                                                                                                               define LIGHTING 21
                                                            *Include <string.h>
                                                                                                                        define paramum 5
                                                                                                                                                                                  #define QUIT 5
#define BITS 31
#define PIECES 32
#define THRASH 33
finclude<device, h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        col old = ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                          rdbval(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ode -- PALETTE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   thange_range (n)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ode - PALETTE;
                                          *include<91.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          init_range(n)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int coef;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            int n;
                                                                                                                                                                                                                                                                                                                                                                                                                          loat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1001
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save_palette();
else save_lighting();
exitmode = 1;
                                                                                                                                                                                                                                                                                                                                                                                                                               if (mode -- PALETTE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exitmode = 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                exitmode = 0;
                                                                                                                                                                                                                                                                                                                                     moda - THRASH;
DrawObj();
                                                                                                                                                                                                                                                    moda - PIECES;
                                      mode = LIGHTING;
init_lighting();
brawobj();
swapbuffers();
                                                                                                                                                               moda - BITS;
                                                                                                                                                                                                                                                                                                                          mode - PALETTE;
                                                                                                                                                mode - PALETTE;
                                                                                                                                                                                                                                      mode - PALETTE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 break;
                                                                                                                                                                                         swapbuffers();
                                                                                                                                                                                                                                                                                 swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                       swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          break;
swapbuffers,);
                                                                                                                                                                            DrawObj();
                                                                                                                                                                                                                                                                  DrawObj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            float dxl;
for(1 = 0;1<3;1++)
for(j = 0;3<ncol; j++)
color_palette(j)[i] =0.0;</pre>
               break;
case LIGHTING:
                                                                                                                                                                                                                                                                                                             case THRASH:
                                                                                                                                                                                                                       case PIECES:
                                                                                                                                                                                                                                                                                                                                                                                      break;
                                                                                                                                  case BITS:
                                                                                                                                                                                                           break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   case 43:
                                                                                                      break;
                                                                                                                                                                                                                                                                                                break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          case 42:
                                                                                                                                                                                                                                                                                                                                                                                                                   case 41:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               default:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  init_palette(ncol)
int ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Int 1, 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      case 1:
    1f (mode == PALETTE) init_palette(ncol);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if (mode == PALETTE) save_palette();
else save lighting();
Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f (mode -- PALETTE) get_palette();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                else init_lighting();
Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else get_lighting();
Drawobj();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         menuval = dopup(menul);
switch(menuval){
                                                                                                                                                                                                                                                                                                                                                                                                                                    getsize(6xsize,6ysize);
while(iqtest() ) (
                                                                                                     tle (RIGHTMOUSE, MOUSEX, MOUSEY);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      make_rgbval (mx, my);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                       getorigin (4xo, 4yo);
                                                                                                                                                                                                                                                                                                                                                                                                        reshapeviewport();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              break;
case (LEFTMOUSE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  swapbuffers();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           case (RIGHTMOUSE):
                                                                                                                                                     get size (*xsize, tysize);
                                                                                                                                                                                                                                                                                                                                                                           switch (gread (&val)) [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DrawOb 1();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qread(6mx);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qread(6my);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       break;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               break;
                                                                                                                                     getorigin(6xo, 6yo);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drawob ) ();
                                                                                                                                                                                                                                                                                                                                                                                          case (REDRAW):
                                                                                                                                                                                                                                                                                                                                                while (qtest() ) [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              case 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      case 3:
    for(1- 0;1<3;1++)
                   rgbval(1) - 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ((va)) (
                                             mode - PALETTE;
moda - THRASH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              break;
                                                                                                                                                                                                                                          processinput ()
                                                                                                                                                                                                                                                                                     short mx, my;
long menuval;
                                                                                                                                                                                                                                                                                                                                                               DrawObj();
                                                                                          MyMenus ();
                                                                                                                                                                                                                                                                       short val;
                                                                              Index =0;
                                                                                                                                                                                                                                                                                                                   short 1;
                                  × • -1;
```

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range = yRectSide - 2*delta;
rgbvalSide = range/100.;
gyvalNidth = xRectSide - 2*delta;
rgbvalNetght = range*rgbval[i-1|+4*delta;
for(kl = 0;xl< 3;xl++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dx2 = (1.0 - 2*delta)/(5.0*paramnum);
side = 4*dx2;
                                                       rect (x[1], y[1], x[1]+dx, y[1]+delta);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for (1 = 0;1<paramnum;1++) {
                                                                                                                                                                                                                                                                                - fmfindfont("Times-Roman");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c3f (6 (11ght vec[1][0]))
                                                                                                                                                                                                                                                                                                       fsized = fmscalefont (f, size);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (mprstr(lightstr(11);
                                                                                                                                                                                                                                                                                                                                                                            lightstr[0] = "specular";
lightstr[1] = "emission";
lightstr[2] = "diffuse";
lightstr[3] = "ambient";
lightstr[4] = "light";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   xRectSide - 1./5. - delta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             yRectSide = 1. - 4*delta;
                                                                                                                                                                               else if (mode == LIGHTING)
                                                                                                                                                                                                                                size = (float)xsize/40.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for (1 - 1; 1<4; 1++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c3f (blackvec);
                              c3f (blackvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          col(k1) = 0.0;
col(1-1) = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /* draw RGB rects*/
                                                                                                                                                                                                                                                                                                                                   fmset font (fslzed);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              c3f (whitevec);
      1(1 - x) 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              c3f (grayvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      c3f (blackvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               c3f (col);
                                                                                                                                                                                                                                                         fminit ();
                                                                                                                                                                                                                                                                                                                                                 for(j = (int) (ncol); j>= (int) (3*ncol/4); j==) (
color_palette(j)[(i) = 1 = dx1*(j = (int) ( 3*ncol/4));
                                                                                                                                                                                                                                                                                                                                                                                                                        for(j = (int) (3*ncol/4); j>= (int) (ncol/4);j==) {
  color_palette(j|[i] = 1.0;
                                                                                                                                                                                             for(1 = (int) (3*ncol/4); j>=ncol/2; j--) {
  color_palette(j)(i) = dx1*(j - (int) (ncol/2));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           color_palette[j][i] =1.0 - dxl*(j-ncol/4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       float x(maxcol),y(maxcol),x1(6),y1(6);
float yRectSide,rgbvalSide,rgbvalHeight,col(3);
char strin(30), 'lightstr(paramnum);
                                                                                                                        for(j = ncol; j>= (int) {3*ncol/4)+1; j--) {
    color_palette[j][i] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for(1 = ncol/2; 3>= (lnt) (ncol/4); 3--) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for (3 = (int) (ncol/4); j>= 0; j-=) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   y(i) =delta;
c3f(6(color_palette[i](0)));
rectf(x[i],y[i],x[i]+dx,y[i]+delta);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for() = (int) (ncol/4); j>=0 ; j==)
color_palette(j)[i] = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dx1.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     color_palette[]][[] -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dx = (1.0- 2*delta)/(ncol);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for (1 = 0;i<ncol;i++){
    x{i} = delta+dx*i;</pre>
                                                for (1 = 0;1<3;1++) [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fmfonthandle fsized;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (mode -- PALETTE ) {
                                                                                                 11(1 -- 0) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fmfonthandle f;
                                                                                                                                                                                                                                                                                                                              1(11 -- 1) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             c3f (whitevec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f(1 -- 2) {
                                                                       dxl- 4./ncol;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float size;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /.palette'/
kold - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       short 1,kl;
                         index = 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drawob)()
```

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rgbvalWidth.rgbvalHeight-rgbvalSide);
rect(delta*!*xRectSide* (! - 1), 3*delta, delta*!*xRectSide*!, 3*delta*yRectSide);
rect(delta*[1+1)*xRectSide*(! - 1), 4*delta, delta*(!-1)*xRectSide*!, 2*delta*yRectSide);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rectf (delta*(i+1) +xRectSide*(i - 1), rgbvalHeight, delta*(i+1) +xRectSide*(i - 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rectf(delta*i+xRectSide*(i -1),3*delta,delta*i+xRectSide*i,3*delta+yRectSide);
rectf (delta+(side+dx2)*1, delta, delta+side*(1+1) +dx2*1, 2*delta);
                                                                                                                    rect(delta+(side+dx2)*1,delta,delta+side*(1+1)+dx2*1,2*delta);
cmov2(delta + (side+dx2)*1, delta/2.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rectf(delta*(1+1) +xRectSide*(1 - 1), 4*delta, delta*(1-1) +
xRectSide*1, 2*delta+yRectSide);
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/* choosing the m-th element of light, param*/
    m = {int} ((x1 - delta)/(dx2+side));
    if ((delta+side*(m+1)+dx2*m - x1)<=side & x1<=delta+side*(m*1)+dx2*m & y1> delta)
for (1 = 0;1<3;1++)lightvec(m)(1) = rgbval(1);</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              color_palette(k)(i) = rgbval(i);
                                                                                                                                                                                                                                                                                                                                                                                                                                    color_palette[]][1] = color_palette[m][1];
                                                                                                                                                                                                                                                                                  color_palette(j][i] - redvec[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                color_palette[j][1] = bluevec[i];
                                                                                                                                                      ncol = (ncol_old *ncol_old)/jump;
bl = (int) ((float)ncol/z1);
b2 = (int) ((float)ncol/z2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1f (moda == BITS) for (1 = 0;1<3;1++) (
         z2 = (float)ncol_old/(float)kOld;
                                                                                                                                                                                                                            for () * ncol; j> b2; j--)
                                                                                                                                                                                                                                                                                                                                                                                                             for (1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                            for() = b2; 3>b1; 3--) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for(j = 0; j<=bl ; j++)
for (l = 0; l<3; l++)
                                                                                                                                                                                                                                                          for (1 = 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                     m - ncol old;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fp = fopen("color_palette","r");
                                                       jumb = kold-k;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (mode -- LIGHTING) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else init_palette(ncol);
                                                                                                                                                                                                                                                                                                                                                                                   .
--E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE 'fp, 'fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (tb := NOTT) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
[
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              save_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     get_palette()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (close (fb);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       k = -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1nt );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      i = (int) (x1/(delta + xRectSide));
if((x1 - (delta*(i+2) + xRectSide*!)) >0 &6 (x1 - (delta*(i+2) + xRectSide*!))
< rgbvalMidth) OK = 1;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    < 2*delta 64 xl > delta 66 xl< 1.0 - delta) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(k0ld < k && k>=0 && k0ld>=0) for() = k0ld; )<k+1; )++)</pre>
                                                rectf(1 - delta - 2*xRectSide, 3*delta, 1 - delta, 3*delta+yRectSide);
                                                                                               rect(1 - delta - 2*xRectSide, 3*delta, 1 - delta, 3*delta+yRectSide);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else If(k>=0 & Kold >=0)for(j = k;j<kold+1;j++)
for(1 = 0;1<3;1++)
color_palette(j)[i] = rgbvai[i];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        color_palette())[1] = rgbval[1];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(y1 > 0 66 y1 < 1.0 66 OK -- 1) rgbval(1) - y1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if (moda -- PIECES && index%2 -- 0 ) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for (1 - 0;1<3;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4d kold \n", k, kold);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (float)ncol_old/(float)k;(float)ncol_old/(float)kold;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -- THRASH && index $2 -- 0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(k < k0ld) |
21 = (float)ncol_old/(float)k;</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              k = (int)((x1 - delta)/dx);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*choosing k - th el of the palette*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x1* (float) (x-xo) / (float) xsize;
y1* (float) (y-yo) / (float) ysize;
                                                                                                                                                                                                                                                                                                                                                                                                                             int ncol_old , jump;
float x1,y1,y2; short 1,OK, j;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yl = (yl - (4*delta))/range;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jump - k-k01d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "loou - plo loou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if(y) > delta 46 yl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               printf('%d k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ise (if (mode -- PALETTE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(k>x01d)[
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1ndex++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x - plox
*sample rectangle*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f (moda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                f(yl > 2*delta) (
                                                                       c3f (blackvec);
                                                                                                                                                                                                                                                                                                    ake_rgbval(x,y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22
                           c3f(rgbval);
                                                                                                                                                                                                                                                                                                                                                                            float 21, 22;
int bl, b2;
                                                                                                                                                                                                                                                                                                                           hort x,y;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ok • 0;
```

```
mycedit.c
```

ທ

```
fp = fopen("color palette","w");
fprintf(fp,"%d\n",ncol);
for() = 0;j<ncol;j++)
fprintf(fp,"%f %f %f\n",color palette[j][0],color_palette[j][1]),
color_palette[j];</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lightvec(2)[0] = 1.0;
lightvec[2][1] = 0.6;
lightvec[2][2] = 0.0;
/*AMBIENT*/
lightvec[3][0] = 1.0;
lightvec[3][1] = 0.0;
lightvec[3][2] = 0.0;
                                                                                                                                                                                                                                                                                                                                                           fscanf(fp, "%f %f %f", &iightvec(j) [0], &iightvec(j)[1],
&lightvec(j)[2]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*DIFFUSE*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lightvec[0][0] = 1.0;
lightvec[0][1] = 0.0;
lightvec[0][2] = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lightvec[]][0] = 1.0;
lightvec[]][2] = 0.2;
lightvec[][3] = 0.0;
                                                                                                                                                                                                                                                                                                                                             for() = 0; 3<paramnum; 3++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*EMISSION*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*SPECULAR*/
                                                                                                                                                                                                                                                                     int j;
FilE 'fp, 'fopen(),
fp = fopen("lighting","r");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fp = fopen("lighting","w");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else init_lighting(); k = -1;
int j;
FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int j;
FILE *fp, *fopen();
                                                                                                                                                                                                                                                                                                                         if (fp != NULL) (
                                                                                                                                                                                                                                                                                                                                                                                                                  k - -1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                save_lighting()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                init_lighting()
                                                                                                                                                                                                                                   get_lighting()
                                                                                                                                                                                                                                                                                                                                                                                                                                   fclose (fp);
                                                                                                                                           fclose (fp);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fclose(fp);
```

lightvec(4)[0] = 1.0; lightvec(4)[1] = 1.0; lightvec(4)[2] = 1.0;

/.TICHT./

prepar.c

```
anel *MyDia!Box(labelStr,Button,butAct)
har *labe:Str,*Button(N);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "putStr = pnl_mkact(pnl typein);
nl_addact(inputStr,paneIPtr);
= 12*sep;
                                                                                                                                                                                                                                     v -> val = 1; \ v -> val = 1.0; \ v -> h = 0.5; \ v -> h = 0.5; \ v -> x = x : v -> y = y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   anelPtr = pnl mkpanel();
anelPtr->x = 600;
anelPtr->y = 500;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    anelPtr->visible - TRUE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InputStr->y - 2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             utton(n) - Button(1);
                             fnclude<fmclient.h>
                                                                                                                                                                                                                                                                                                                                     Actuator *InputStr;
                                                                                                                                                                                                                                                                                                                                                                                ctuator *butAct[N];
                                                                                                                                                                                                                                                                                                                                                                                                                           ctuator 'mylabel;
loat sep,x,y;
anel 'panelPtr;
                                                           'include <string.h>
                                                                       include "cpath.h"
               Include < device. h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or (1 - 0;1<N;1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [ (Button[1]!-0) (
·include<stdlo.h>
                                             .include<gl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -- 2.sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - 0.5;
                                                                                                                                                                                                                                                                                                                                                                                                              nt 1, n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .0.0;
```

```
/*erase geoname*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mystring - PNL_ACCESS (Typein, inputStr, str);
                                                                                                                                                                                                                                                                                                                                                                                     gconfig();
But(0) = "CONTINUE";
But(1) = "SELECT";
But(1) = MyDlalBox("INPUT FILE NAME", But, but);
pnl_needredraw();
fp = fopen("geoname","w"); /*erase geof
FILE "fp, "fopen();
char qeodata(100), pluc.1[100];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pni_delpanel(dial);
    fp = fopen("geoname","w");
    fprintf(fp,"%s",mystring);
                                                                                                                                                                                                          int mode = 1;
float x = 0.0; float y = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  while('(but[0]->val))(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pnl_userredraw();
pnl_dopanel();
                                                                                                                                                                                                                                                                                                                     igidi - winopen("");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*winclose (igidl); */
                                                                                                                                                              Actuator *but [N];
                                                                                                                                                                                                                                                                                                keepaspect (1, 1);
                                                                                                                                                                                                                                                                                                                                            doublebuffer();
                                                  char *mystring;
                                                                                                                                                                                                                                                      foreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (close (fb);
                                                                                                                                     char *But [N];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fclose (fb);
                                                                                                                short mx, my;
                                                                                                                                                                                     Panel *dial;
                                                                                         long 191dl;
                                                                                                                                                                                                                                                                                                                                                                     RGBmode ();
                                                                                                                                                                                                                                                                               noport ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /* panel is initialised invisible'*/
/* to make it visible say panelPtr->visible = TRUE */
/* and pnl(fixpanel(panelPtr);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JTTON (but Act [1], Button [1], 0.0, 1.0, 0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nl_addact (butAct [1], panelPtr);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label - pnl_mkact (pnl_label);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label->y - InputStr->y+2*sep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ol_addact(mylabel,panelPtr);
turn panelPtr;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label->label - labelStr;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --sep+butAct[1]->W;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - 0;1<n;1++){
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label->x * sep;
```

```
npoints, npolys;
mins = (1000000, 1000000, 1000000);
maxs = (-1000000, -1000000, -1000000);
                                                                                                                                                                                                                                                                                                                                                                                                         w = pnl_mkact(pnl_toggle_button);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WKHSLIDER1(v, n, b, t, 1)\
v = pnl mkact (pnl hslider) ;\
v => label = n ;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BUTTON(v, n, b, t, 1)\
v = pnl_mkact(pnl_radio_button);\
v -> label = n;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               V1(SIZE) ,V2(SIZE)[3),V3(SIZE)[3];
                                                                                                                                                                                                                                                                       #define min(a, b) ((a) < (b) ? (a) : (b)
#define max(a, b) ((a) > (b) ? (a) : (b))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 v -> x = x ; v -> y = y ; \
v -> h = h1;v -> w = w;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       v -> minval = b; \
v -> maxval = t; \
v -> val = i; \
v -> x = x; v -> y = y; \
v -> h = hi; v -> w = w; \
pnl_addact(v, p); \
x += v -> w + sepl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                v -> minval = b; \
v -> maxval = t; \
v -> val = 1; \
v -> x = x; \
v -> x = x; \
v -> y = n; \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pnl_addact(v, p);\
y += v -> h + sep;\
x += v -> w - 4*sep-w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pnl_addact(v, p) ;\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    v -> minval - b ;/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v -> maxval = t ; \
                                                   N(SIZE),N1(SIZE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v -> label = n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /: 1 - 1 ev <- v
                                                                                                                                                              mi = 1000000;
ma = -1000000;
                                                                                                                                                                                                                                                                                                                                                              float Max , scal, fovy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fdefine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           •deflne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        •define
                                                                                                                                                                                                                                                                                                                                                                                                                      define
                                                                                                                                                                   float
                                                                                                                                                                                             float
                                                                                                                                                                                                                      float
                                                                                                                                       Vec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               p -> p - (Vec **) calloc(nsides, sizeof(Vec *));
p -> s = (int * ) malloc(3* sizeof(int ));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        p = (Polygon *) malloc (sizeof(Polygon))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        negflag;
backvec[] = [0.8, 0.8, 0.8]; '-/
backvec[] = [0., 0., 0.];
blackvec[] = [0.0, 0.0, 0.0];
redvec[] = [1.0, 0.0, 0.0];
whitevec[] = [1.0, 1.0, 1.0];
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                t -> p_nsides = nsides ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   p_nsides;
                                                                                                                                                                                                                                                                                                                                                                legend[ncol][3] = (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vec(3);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Polygon * p;
                                                                                                             #include <q1.h>
#include "panel.h"
#include <device.h>
#define ncol 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vec v(SIZE);
Polygon * P(SIZE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MakePolygon (nsides)
                                                        #include <stdio.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return p ;
sgeomview.c
                                                                                                                                                                                                                                                                                                                                                                                       typedef struct (
                                                                                                                                                                                                                                                                              SIZE
                                                                                                                                                                                                                                                     ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 typedef float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  int nsides;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ! Polygon ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Polygon .
                                                                                                                                                                                                                           define
                                                                                                                                                                                                                                                     define
                                                                                                                                                                                                                                                                                 define
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*float
                                                                                                                                                                                                                                                                                                                                                                     float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               float
```

```
sgeomview.c
```

```
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - 0; 1 < npoints; 1++) {
   scanf("%f %f %f\n", 6(V[1][0]), 6(V[1][1]), 6(V[1][2]))</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fprintf(stderr, "td points, td polys\n", npoints, npolys)
./
                                                                                                                                                                                                                                                                                                                                                                                 MKHSLIDER (distance, "Distance", k*Max, k*k*Max, k* Max);

MKHSLIDER (thets, "Z ROTATION", 0.0, 3600.0, 0.0);

MKHSLIDER (phl, "X ROTATION", 0.0, 3600.0, 0.0);

MKHSLIDER (twist, "Y ROTATION", 0.0, 3600.0, 0.0);

MKHSLIDER (shist, "SIZE", 0.5,001, 0.3);

MKHSLIDER (shix, "SHIFT_X", -1.0*Max, Max, 0.0);

MKHSLIDER (shix, "SHIFT_X", -1.0*Max, Max, 0.0);

MKHSLIDER (shiy, "SHIFT_X", -1.0*Max, Max, 0.0);

MKHSLIDER (sso, "XSCALE", 1,10,1.0);

BUTTONI (model, "101el", 0.0, 1.0, 0.0);
                                                                            Actuator * distance, * theta, * phi ,* model, * surface, *twist, *angle, *shix, *shiy, *smooth, *xsc, *ysc, *tumble;
                                                                                                                                                                                                                                 = 0.0, sep = 0.7, sepl=1.1 = 1.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BUTTON1 (map, "Map", ').0,1.0,0.0);
BUTTON (smooth, "Smooth",0.0,1.0,0.0);
BUTTON2 (tumble, "Tumble",0.0,1.0,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int 1, j, ku, nverts, index(3), nsides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                scanf ("%d %d\n", & npolys, & npoints)
                                                                                                                                                                                                                                                                                                              p = pnl_mkpanel();
p -> label = "Control Panel v.10";
p -> ppu = 36.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ) (++[ :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -le10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     le10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for (! = 0; i < npoints ; i++)
tempo=V[i][1];</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for (1 = 0; 1 < 3
mins(3) =
maxs(3) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    V[i][0] - V[i][0]- shiftx;
V[i][1] - tempo - shifty;
y += v -> h + sep; \
x += v -> w - 4*sep-w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tmpl, tmp2 ;
                                                                                                                                                                                                         x p ;
x 0.0, y
h1 0.5, x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*Lala: I changed here */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for (1
                                                                                                                                                                                                              Panel
                                                                                                                                                                                                                                      float
                                                                                                                                                                                                                                                              float
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ReadObject ()
                                                                                                                                                         DefPanel()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     :
```

```
mins(ku) - min(mins(ku), V(index(j]-1)(ku));
maxs(ku) - max(maxs(ku), V(index(j]-1)(ku));
V3[1][j] += (V(index(j]-1)(ku) * V(index(j]-1)(ku));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fprintf(stderr, "bbx: %f - %f\n", mins[0], maxs[0])
fprintf(stderr, "bby: %f - %f\n", mins[1], maxs[1])
fprintf(stderr, "bbz: %f - %f\n", mins[2], maxs[2])
                                                                                                                     - 13
P(1) = MakePolygon(3);
for (1 = 0; 1 < 3; 1++) {
    scan("*td", &tindex[1]);
    P[1]->s[1] = V + (Index[1] - 1);
    V2[1[1] = V + (Index[1] - 1);
    V2[1[1] = V[1ndex[1] - 1];
    for (ku = 0; ku < 3; ku++) {</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - 0; 1 < npolys; 1++) {
    VecSub(P[1]->p[0], P[1]->p[1], tmpl);
    VecSub(P[1]->p[2], P[1]->p[1], tmp2);
    VecCross(tmpl, tmp2, N[1]);

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max - max (maxs[0]-mins[0], maxs[1]-mins[1])
                                                                                                                                                                                                                                                                                                                            V3[1][j] = sqrt (V3[1][j]);
m1 = min(mi,V3[1][j]);
ma = max(ma,V3[1][j]);
                                                                                                                                                                                                                                                                                                                                                                                                                                            V1[1] - V2[1][0] + V2[1][1] +V2[1][2];
V1[1] - V1[1]/3.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (negflag) {} else{
N{!}{0} = -N{!}{0} ;
N{!}{1} = -N{!}{1} ;
N{!}{2} = -N{!}{1} ;
N{!}{2} = -N{!}{2} ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max = max(Max, maxs[2]-mins[2]);
shiftx = 0.5*(maxs[0]+mins[0]);
shifty = 0.5*(maxs[1]+mins[1]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for (1 = 0; 1 < npolys; 1++) (
for (3 = 0; 4 < 3; 3++) (
nut P(11->s(1) | 1(01+ n(1)(0);
nut P(11->s(1) | 1(1)+ n(1)(1);
nut P(11->s(1) | 1(2)+ n(1)(1);
nut P(11->s(1) | 1(2)+ n(1)(1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for (1 = 0; 1 < npolys; 1++)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for (1 = 0; 1 < npolys ; 1++)
VecNormallze(N1[1]);</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*mins[2]-0;*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          else scal = ncol/ma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         scal-ncol/(ma-m1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NI[1][0] = 0.0;
NI[1][1] = 0.0;
NI[1][2] = 0.0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (ma >= m1 )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for (1
```

```
col_ind=(int) ((VI(i)-mins(2)) *scal);
col_ind=min(ncol-1,max(0,col_ind));
c3f(&(legend(col_ind)(0)));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bgnpolygon() ;
for (1 = 0 ; ) < P[i] -> p_nsides ; j++) ;
col_ind=(int) ((V3[i][j]-mi)*scal);
col_ind=min(ncol-1,max(0,col_ind));
col_ind=min(ncol-1,max[0]);
col_ind=min(ncol-1,max[0]);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for (1 = 0; ) < P(1) -> p_nsides; j++)
c3f(4(legend(71(0)));
f(feemp2) n3f(N(1));
if(temp0) n3f(N(1));
v3f(P(11->p(1));
                                                                                                                                                                                                                                                                                                                                                                                                                                                            for () = 0; j < P(1) -> p_nsides; j++)
v3f(P(1)->p(j));
perspective(fovy, 1.0, 0.1, k*k* Max+(1./ang));
                                                                                                                                                                                                                                                                                   translate(-1.0*shiftx,-1.0*shifty,0.0);
                  polarview(distance->val,0.C,0.0,0.0);
rotate((short)twist -> val,'y');
rotate((short)theta -> val,'z');
                                                                                                                                                                                                                                                                                                                                                                                 for (1 = 0; 1 < npolys; 1++) (
c3f(redvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for (1 = 0; 1 < npolys; 1++) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for (1 = 0 ; 1 < npolys ; 1++) (
                                                                              rotate((short)phi -> val,'x');
scale(x_sc,y_sc,1.0);
rotate(tum,'y');
                                                                                                                                                                                                                                                                                                                                                                                                                          /*c3f(blackvec);*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        )
endclosedline() ;
                                                                                                                                                                                                                                                                                                                                                                                                                                           bgnclosedline();
                                                                                                                                                                                                                                            translate(shx,shy,0.0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ()uobilodubq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    endpolygon()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      endpolygon()
                                                                                                                                                               rotate (900,'z');"/
                                                                                                                                                                                                                                                                                                     1f (temp] -- 1) [
                                                                                                                                                                                                                                                                                                                          lmbind (MATERIAL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f (temp3 -- 1) (
                                                                                                                                                                                                                                                                                                                                            lmbind(LIGHTO, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1mbind (MATERIAL, 0)
                                                                                                                                                                                                                                                                                                                                                                 1mbind (LMODEL, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mbind(Lighto, 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lmbind(LIGHTO, 1);
lmbind(LMODEL, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f(temp2 || temp0 )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Imbind (MATERIAL, 1)
                                                                                                                                                                                                                                                                Drawbox ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   lmbind (LMODEL, 0)
                                                                                                                                                               •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 = (float) sqrt(a[0] * a[0] + a[1] * a[1] + a[2] * a[2]) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              c(0) - a(1) · b(2) - b(1) · a(2) ;
c(1) - - (a(0) · b(2) - b(0) · a(2)) ;
c(2) - a(0) · b(1) - b(0) · a(1) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 int 1, j,col_ind;
int temp0,temp1,temp2,temp3,tumb1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      float ang, shx, shy, x_sc, y_sc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fovy= (atan (ang) *1800) /PI;
fovy=2*fovy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             temp2=surface -> val;
temp0=smooth -> val;
temp3=map -> val;
                                                                                                                                                                                                                                                                                                   c(0) = a(0) - b(0);
c(1) = a(1) - b(1);
c(2) = a(2) - b(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ang - angle -> val;
shx - shix ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          loadmatrix(idmat);
                                                                                                                                       - a(0);
- a(1);
- a(2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             templ-model -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              reshapeviewport ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              shy - shiy ->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               x_sc - xsc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   y_sc = ysc->val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c3f (backvec);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a(0) /= 1;
a(1) /= 1;
a(2) /= 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         zclear();
                                                                                                                                     a(0) = 0
1(1) = 0
                                                                                                                                                                                                                                                                                                                                                                                                        VecCross(a, b, c)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             float 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clear();
                                                                                                                                                                                                                                          VecSub(a, b, c)
Vec a, b, c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecNormalize(a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int tum ,tumbl;
DrawObject()
                                                                                                                                                                                                                                                                                                                                                                                                                          Veca, b, c;
                                                                               VecNegate (a)
                                                                                                    Vec a ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vec a ;
```

sgeomolew.c

```
lmdef(DEFWATERIAL, 1, 19, shinymaterial);
lmdef(DEFLIGHT, 1, 6, sun);
lmdef(DEFLMODEL, 1, 0, NULL);
                                                                                                                 LMNULL );
0.0, 0.0, 1.0,0.0,
LMNULL );
                                                                                                                                                                                                                                                                                              lmbind(MATERIAL, 1);
lmbind(LIGHTO, 1);
lmbind(LMODEL, 1);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tumbl - tumble -> val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              while (pnl_dopanel()) reshapeviewport();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1raw(-0.5,0.5,ce-0.1); *cmov (-0.5,0.499,ce-0.1);
                                                                                                                                  float sun() = ( POSITION,
                                                                                                                                                                                                                                                                                                                                                                                                                   ce *(maxs[2]-mins[2])/2;
~ove(0.0,0.0,ce);
swapbuffers();
                                                                                                                                                           def_simple_light_calr()
                                                                                                                                                                                                                                                                use_simple_light_calc()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /'cmov (-0.499,0.6,ce);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ''cmov (-0.6,0.499,ce);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1f(tumb: -- 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    c3: (backvec) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DrawObject();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , mr . . . ma .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            charstr("X");*/
move(-0.5,0.5,ce);
draw(-0.5,0.6,ce);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nove(-0.5,0.5,ce);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               zclear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clear();
                                                                                                                                                                                                                                                                                                                                                                                                                                                 draw(1.0,1.0,ce);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sharstr ("Y"); "/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mmm-80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  charstr ("2");*/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0$1();
                                                                                                                                                                                                                                                                                                                                                                                                      c3f (redvec);
                                                                                                                                                                                                                                                                                                                                                                                       float ce;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10 BOL CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .nt mmm;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (or (;;)
                                                                                                                                                                                                                                                                                                                                                          () [sc
```

```
char string1(5), string2(5), string3(5), string4(5);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        add_event (winget (), REDRAW, ANY, DO_JOB(), 0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        float kvadrat1[] = [-1.0,-1.0,-1.0];
float kvadrat2[] = [-1.0,1.0,-1.0];
float kvadrat3[] = [1.0,1.0,-1.0];
float kvadrat4[] = [1.0,-1.0,-1.0];
                                                                                                                                                                      1f (strchr(argv(0), 'n'))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pnl needredraw();
def_simple_light_calc();
Drawobject();
                                                                                                                                                                                                                                                                                                                                                                                                          lsetdepth(0, 0x7FFFFF);
                                                                                                                                                                                        negflag = 0;
                                                                                                                                                                                                                                                                                                    winopen("surface");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sprint f(string), "4s", "X");
sprint f(string2, "4s", "Y");
sprint f(string3, "4s", "2");
sprint f(string4, "4s", "0");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cmov (-0.97, -0.97, -0.97);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qdevice (REDRAW);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cmov (-1.03, -1.03, 1.03);
                                                                                                                                                                                                                                                          keepaspect (1, 1)
                                                                                                                                                                                                                                                                                                                                        doublebuffer();
                                                                                                                                                                                                                                                                                                                                                                                                                                zbuffer (TRUE) ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mmode (MVI EWING)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cmov (-1.0, 1.03, -1.0);
                                                                                                                                                                                                              ReadObject();
                                                                                                                                                                                                                                                                              foreground();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cmov (1.0, -0.97, -1.0);
                                                                              int 1, temp2;
                                                                                                        short val;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DefPanel();
                                                                                                                                                                                                                                                                                                                                                                  gconflg();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   charstr (string3);
                                                                                                                                                                                                                                                                                                                        RGBmode ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               charstr (string);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         charstr (string2);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             charstr(string4);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           c3f (whitevec);
                                      char * argv[];
                                                                                                                              int dev;
main(aigc, argv)
                      int argc ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drawbox ()
```

```
sgeomview.c
```

popmatrix();
pushmatrix();
translate(0.0.0,2.0);
translate(0.0,0.0,2.0);
v3((kvadratl);
v3((kvadratl);
v3((kvadratl);
v3((kvadratl);
endclosedline(); pushmatrix();
bgnclosedline();
v3f(kvadratl);
v3f(kvadrat2);
v3f(kvadrat2);
v3f(kvadrat4);
endclosedline();

pushmatrix();
rotate(-900,'y');
bgncloredline();
v3f(kvadrat1);
v3f(kvadrat2);
v3f(kvadrat2);
v3f(kvadrat3);
popmatrix();
pushmatrix();
pushmatrix();
pushmatrix();
pushmatrix();
pushmatrix();
pushmatrix();
pushmatrix();
v3f(kvadrat1);
v3f(kva'rat2);
v3f(kva'rat2);
v3f(kva'rat2);
v3f(kvadrat3);
v3f(kvadrat3);
v3f(kvadrat3);
v3f(kva'rat2);
v3f(kva'rat2);
v3f(kva'rat2);
v3f(kvadrat3);
v3f(kvadrat1);
v3f(kvadrat1);
v3f(kvadrat1);
v3f(kvadrat1);

```
write(8,*) 'triangulation of inital points is constructed'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r (4, nst+1) = (r (4, sites (1, tgl)) +r (4, sites (2, tgl))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rv-sqrt (scal (vec(1, lord(lt)), vec(1, lord(lt))))
                                                                                                                                                                                                                                          write(8,*) 'the second input parameter is too small'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          radv(1t).lt.rvmin**2) goto 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(ok.and..not.frametr(tg],r,sites)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (mod (nst-nst0,1000).eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              r(jl, nst+1) =vec(jl, lord(lt))/rv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          radv (12) -scal (vec (1, 12), vec (1, 12))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              print ", " maxtr is too small"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(it.it.ntr.and.nst.it.maxst) goto 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(nst.eq.madst.or.it.lt.2*ntr/3.or.
                                                                                                                                                                                                                                                                write(8,*)'Interpolation is not aloud'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        print ",'max rad vec =',radv(ntr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call search (tgl, nst +1, ok, mk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    print ",' # iterations "',ic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call bar (tgl, nst+1, mk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        +r(4, sites(3, tgl)))/3
                                                                                                                                                                                                                                                                                                                                                                                              If (ind6.eq.1) call winclo(iqid)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          If (ntr.gt.maxtr) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call kb07a(radv,ntr,iord)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If (rv.lt.rvmin) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call recon(tgl)
                                                                                                                                                                              if (nst .ge. madst) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              goto 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nst =nst +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 40 31-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgl-ford(it)
      call graphics (igid)
                                                                                                                                                                                                    40 60'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-11-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  stop 13
                                                                                                                                                                                                                                                                                                            call tryl("text")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 30 12-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                end if
                                                                                          if (ind6.eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              goto 1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-11-1
                          call outputl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                    write(8,•)
                                                                                                              call output
end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-10+1
                                                                                                                                                                                                                                                                                        close (8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ind5 - 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nst0=nst
                                                                                                                                                                                                                                                                                                                                close (3)
                                                                                                                                                                                                                                                                                                                                                        close (1)
                                                                                                                                                                                                                                                                                                                                                                            Ind5 - 1
                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                                                                          and if
                                                end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / * * * >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    open(1,file=finam)
open(2,file='stempor',form='unformatted',status='unknown')
open(3,file='saddual',form='unformatted',status='unknown')
                                                                                                                                                                                              'ntr' - † tpeugolxhík bb, '/net/' - cpicok cmevhocti diq
gpafa dualxhogo k tpiahgulqcii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---> too much for arrays been declared
                                      tplahgulqciq opophyx to-ek i dobablehie dualxhyx to-ek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  read (1,*,end-1020,err-1020) (r(10,nst),10-1,4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bxl'-itx to-ku 'np' b tplahquiqcl', dlq Itogo
hajti tp-k 'tgl', b xotopom levit 'np'
call search(tgl,np,ok,mk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ha-. kohflgupaciq - tetpaidp c bep(.hami 1,2,3,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --->', nst,' points have been read
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cdelatx bapicehtpi-eckoe podpazdelehie
                                                                                                                                                                                                                                          common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print ',' triangulation is constructed'
                                                                                                                                                                                                                                                                                common /bld/ radv(maxt:), lord(maxt:)
common/extremum/rmin,rmax,radius,rad_ex
subroutine adds (finam, mad.t, ind5, ind6)
                                                                                      parameter(maxst-70000, maxtr-2·maxst)
                                                                                                                                                    'nst' - | to-ek, 'r' - ix koopdihaty common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call bar(tg), np, mk)
pepectpoitx tpiahgulqci'
                                                                                                                                                                                                                                                                common /cones/ vec{3,maxtr}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rmin - min(rmin, r (4, 1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rmax * max(rmax,r(4,1))
                                                                                                            parameter (rvmin=1+1e-5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call recon(tgl) end if
                                                                                                                                integer next, sites, tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(nst.ge.maxst) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    open(7, file='triang')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        open(8,file - 'text')
                                                                                                                                                                                                                                                                                                                                                                        character 40 finam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          do 788 1 - 1, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f (Ind6.eq.1) then
                                                                                                                                                                                                                                                                                                                                                  logical frametr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rmin = 1.e50
rmax = -1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(ok) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 20 np=5, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                print .,"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nst-nst+1
                                                                                                                                                                                                                                                                                                                                                                                                                  format (a40)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stop 12
                                                                                                                                                                                                                                                                                                                              logical ok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call tetra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end If
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1020 ns* -nst-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              kkk-1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          goto 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nst-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          191-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ್ಷ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                1045
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                                                                                                                                          ha-alo koopdihat dolvho levatx bhutpi tetpaldpa
                                                                                                                                                                                                                                                                                                                                                                                                           initial data are wrong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             initial data are wrong
                                                                                                                                                                                                                    initial data are wrong
                                                                                                                                                                                    if (tl.1t.-.2.and.tl.gt.-.8) goto 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     v3-volum(r(1,1),r(1,2),r(1,n4))
1f(v3.gt.el) goto 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (v1.gt.el) then
v2=volum(r(l,3),r(l,1),r(l,n4))
                                                                                                                                                                                                                                                                                                                                                   do 40 n3m3, nst
t2mvolum(r(1,2),r(1,1),r(1,n3))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              v1=volum(r(1,2),r(1,3),r(1,n4))
                                                                                                                                                                                                                                                                                                                                                                                If (abs (t2).gt..2) goto 1030
                                                                                                                                                                         t1-scal(r(1,1),r(1,n2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(v2.gt.el) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         u3-r(j2,3)
r(j2,3)-r(j2,1)
r(j2,1)-u3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   u2-r(jl,3)
r(jl,3)-r(jl,n3)
r(jl,n3)-u2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     r(32,4)=r(32,n4)
                                                                                                                                                                                                                                                                                                         r(j0,2)=r(j0,n2)
r(j0,n2)=ul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ^==
                                                                                                                                                                                                                     ^** E
                                                                                                                                                                                                                                 ^1
                                                                                                                                                                                                                                                                                                                                                                                                              1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f(t2.lt.0) then
do 60 j2=1,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r (12, n4) -u3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 70 n4=4, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call circle(1)
                                                                                                                                                         1010 do 20 n2-2, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call circle(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 80 32-1,4
u3-r(32,4)
                                                                                                                                                                                                                                                                                            ul=r(30,2)
                                                                                                                                                                                                                                                                             do 30 j0-1,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 50 jl-1,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end if
                                                                        sites (3, 3) -2
                                                                                    sites(1,4)=1
sites(2,4)=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                           sites (3, 2) =1
                                          sites (1,3) =4
                                                         sites (2,3)=1
                                                                                                               sites (3, 4) =2
                                                                                                                                                                                                      continue
                                                                                                                                                                                                                                                                                                                                       continue
                                                                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              print ','
print ','
                                                                                                                                                                                                                     print .,'
                                                                                                                                                                                                                                print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end if
                                                                                                                                                                                                                                                                                                                                                                                                           print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1040 continue
                                                                                                                                                                                                                                                                                                                                                                                                                           print ",
                                                                                                                                                                                                                                                               1020 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1030 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stop 25
                                                                                                                                                                                                                                                stop 23
                                                                                                                                                                                                                                                                                                                                                                                                                                         stop 24
                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                       30
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print ',' padluc-bektop dolveh bytx polovitelxhym' print '('' r {4,'', i4,''} ='', 918.9)', nl, r(4,nl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ha.. kohfigupaciq - tetpaldp c bep[ihami 1.2 3,4
                               , ....
                                                                                                                                                                                                                                                                              integer next, sites, tgl
common /points/ nst,r(4,maxst)
common /net/ ntr,next(3,maxtr), sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                    data are wrong <---
                                            pnt "',nst,' <===',</p>
                                                          write (3) ntr,nst
write (3) ((r(12,13),12=1,4),13=1,nst)
write (3) ((sites(12,13),12=1,3),13=1,ntr)
                                                                                                                                                                                                     Inicializaciq diq cfepi-eckoj tpiangulqcii
                            ok! i write ...
                                                                                                                                                                                                                                    parameter(maxst+70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                          bektop 'r' dolveh imetx edihi-hu
                                                                                                                   if (ind6.eq.1) call winclo(igld)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(r(4,nl).le.0) then
                                                                                                                                                                                                                                                                                                                                                                                    ^===
                             ^
                                           ^ = = =
                                                                                                                                                                                                                                                                                                                                                                      if(nst.lt.4) then
print *,' --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  flag-.true.
                                                                                                                                                                                                                                                                ,e1-0.1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          flag. true.
                                                                                                                                                                                                                                                  parameter(e-le-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If(flag) stop 22
                                                                                                                                                                            subroutine tetra
                                                                                                                                                                                                                                                                                                                           logical flag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end if
                                                                                                                                                                                                                                                                                                                                                                                                stop 21
end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sites (1,1) =4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sites (3,1)=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sites (1,2)=4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sites (2, 2) =3
                                           print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stes(2,1)=2
                               print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             next (1,1) -4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      next (1, 2) =4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            next (2, 4) =3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (3, 4) -2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (2, 1) =2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          next (3, 1) =3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      next (2, 2) =3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   next (1, 3) -4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                next (2, 3) -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 next (3, 3) =2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              next (1, 4) -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    next (3, 2) =1
                                                                                                     close (3)
                                                                                                                                   return
adds.f
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if(scal(r(1,np),r(1,sites(2,tgl))).ge.el) then
r(4,sites(2,tgl))=(r(4,np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(scal(r(1,np),r(1,sites(1,tgl))).ge.el) then
r(4,sites(1,tgl))=(r(4,np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print *,ndp,'-th point is deleted'
if(scal(r(1,np),r(1,sites(3,tgl))).ge.el) then
r(4,sites(3,tgl))*(r(4,np)
                                                                                                                                                a3-volum(r(1,np),r(1,sites(1,tgl)),r(1,sites(2,tgl)))
a1-volum(r(1,np),r(1,sites(2,tgl)),r(1,sites(3,tgl)))
a2-volum(r(1,np),r(1,sites(3,tgl)),r(1,sites(1,tgl)))
if(a1.ge.0.and.a2.ge.0.and.a3.ge.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print *,ndp,'-th point is deleted'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               print *,ndp,'-th point is deleted"
                                                                                                                                                                                                                                                                                                                       if(v1.le.e.and.v2.le.e.and.v3.le.e) then
print *,' all volumes are zero'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               +r (4, sites (2, tgl)))/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             +r(4,sites(1,tgl)))/2
                                              common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                    If (v1.le.e.or.v2.le.e.or.v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +r (4, sites (3, tgl)))/2
end if
       integer next, sites, tgl, m, np, prev, ndp/0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(v3.le.e) then
                           common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ok-.false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ok .. false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ndp=ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ndp=ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                         1f(v2.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ok-.true.
endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(v2.gt.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ok-.true.
                                                                                                                                                                                                                                                                                                                                                                                                                               ok-.false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JI pue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ok-.true.
                                                                                                                                                                                                                                                                                                                                                                                    if(vl.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ę.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mk=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       end1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e i se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e]se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ak=3
                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e J se
                                                                                                                                                                                                                                      v1-abs (al)
                                                                                                                                                                                                                                                           v2-abs (a2)
                                                                                                                                                                                                                                                                                v3-abs (a3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            else
                                                                    logical ok
                                                                                                                              0-XE
                                                                                                                                                                                                              integer next,sites,np,crl,tr2,tr3,tra,trb,st,st1,st2,st3
common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polck tpeugolanika b kotopyj popadaet to-ka np
                                                                                                                        to-ka 'st' pomelaetcq b tp-k 'trl' ppi pomoli
                                                                                                                                                                                         parameter(maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'tra' i 'trb' - dba hobyx tpeugolxhika
                                                                                                                                                  bapicehtpi-eckogo podpazdelehiq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subroutine search(tgl,np,ok,mk)
                                                                                     subroutine bar(trl,st,mk)
                                                                                                                                                                                                                                                                                                                     n0=next (mk,trl)
                                                                                                                                                                                                                                                                                                                                           m0-mark (n0, trl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call flip(nl, l)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call circle (n0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              next(3,tra)=trl
next(1,trb)=tr3
next(2,trb)=trl
next(3,trb)=tra
stl=sltes(1,trl)
                                                                                                                                                                                                                                                                                                If (mk.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                             m2-mark (tr2, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        next (m2, tr2) -tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (m3, tr3) -trb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sites(2, tra) mst3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 If (mk.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  n1-next (m0, n0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             st3-sites (3, trl)
sites (1, trl) -st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sites (3, tra) *stl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sites (2, trb) -stl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sites (3, trb) -st2
                                                                                                                                                                                                                                                                                                                                                                                                                                                m3-mark (tr3, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      st2-sites(2,trl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call circle(trl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call circle(tra)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (2, tra) -trb
                                                                                                                                                                                                                                                                                                                                                                                    tr2-next (2, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                next (2, trl) -tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    next (3, trl) -trb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       next (1, tra) -tr2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sites(1,trb)~st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call circle (trb)
                                                                                                                                                                                                                                                                                                                                                                                                         tr3-next (3, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sites (1, tra) -st
call circle(4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               trb-ntr+2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tra-ntr+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ntr-ntr+2
                                                                                                                                                                                                                                                                                                                                                                end1 f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end1.
                         return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return
                                                                                                                                                                                                                                                           Save
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end
```

ok-, true.

parareter (maxst-70000, maxtr-2*maxst)

,el-1--6)

paraneter (e-le-24

e)se

end 1f

return

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\ F F F \
                                                                                                                                                                                                                                                  If (scal (r (1, np), r (1, sites (ml, tgl))).ge.el) then
r (4, sites (ml, tgl)) = (r (4, np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tplahgulqciq delohe he polutlaetcq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stp=0
1010 ngb=next(1,nxt)
1f(stes(1,nxt).ne.sites(1,tg1)) then
print *,' ===> next i sites he coglacobahy
                                          print ", ndp,' -th point is deleted"
                                                                                                                                                                                                                                                                                                                                                            print ', ndp,' -th point is deleted'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Integer next, sites, tgl, nxt, ngb, stp
common /points/ nst,r(4, maxst)
common /net/ ntr,next(3, maxtr), sites(3, maxtr)
                                                                                                                                                                                                                                                                                      +r(4, sites(m1, tg1)))/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(.not.criter(ngb, sites(1,tgl))) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parameter(maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pepectpojka peletki.
bocctahoblehie tpiahgulqcii delohe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ppi pomoli kpugobogo kpitepig
                                                                                                                                                                                                                                  If(v3.le.e) then
                                                                                                                                                                                                                                                                                                                     ok..false.
ndp-ndp+l
                                                                                                                                                                                                                                                                                                                                                                                                         ok-.true.
endlf
      ok-.false.
                                                                                                                                                                                                                                                                                                        end if
                      ndp-ndp+1
                                                                                             ok .true.
                                                                                                                                                              1f(v2 gt.e) then
                                                                                                            end 1f
                                                                                                                                                                                                                                                                                                                                                                                            mk =m2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if(stp.gt.3*nst) then
print *,' ****>
                                                                          mk-m]
                                                                                                                                                                                                    ok-.true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        subroutine recon(tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call flip(nxt,1)
goto 1010
                                                                                                                              end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                              end1f
                                                          else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call circle (nxt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nxt-next (2, nxt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               logical criter
                                                                                                                                                                                                                                                                                                                                                                                                                                                               end1f
                                                                                                                                                                                                                  else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ok-.true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       stop 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end if
                                                                                                                                              else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 stp-stp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
Y
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nxt-tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(v3.ie.e) then
if(scal(r(i,np),r(i,sites(m2,tgl))).ge.el) then
r(4,sites(m2,tgl))=(r(4,np)
+r(4,sites(m2,tgl)))/2
end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(scal(r(1,np),r(1,sites(m3,tq1))).ge.el) then
r(4,sites(m3,tq1))=(r(4,np)
+r(4,sites(m3,tq1)))/2
                                                                                                                                                                                                                                                                                                                                                                                                                                      a3-volum(r(l,np),r(l,sltes(ml,tgl)),r(l,sltes(m2,tgl)))
a1-volum(r(l,np),r(l,sltes(m2,tgl)),r(l,sltes(m3,tgl)))
a2--a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print ",' """> tpeugolxhik he hajdeh <"""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          print ', rdp,' -th point is deleted'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(v!.le.e.and.v2.le.e.and.v3.le.e) then
  print ',' all volumes are zero'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1:(vl.le.e.or.v2.le.e.or.v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               If (v2.le.e) then
            if(a2.lt.a3) then
if(a1.lt.a2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ok. false.
                                                                                                                                                                      if (al. lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(kO.gt.maxtr) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(a.1t.0) goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(vl.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                  m2-mark (tgl, prev)
m3-mod (m2, 3, +1
m1-mod (m3, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(al.lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                     tgl-next (m, tgl)
                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ok..false.
                                                                    a-a1
                                                                                                                      a=a2
                                                                                                                                                                                                                                                            8-83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                            a-al
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                                                                                                    11-2
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C
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                                                                                                                                                                                           Ē
end if
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        v1-abs (al)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v2-abs (a2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v3-abs (a3)
                                                                                    else
                                                                                                                                                                                                                               e I se
                                                                                                                                                                                                                                                                                                                                                  1010 prev-tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E-E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3-4]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B=B3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a-a3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x0-x0+1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                scal-dprod(x(1),y(1)) +dprod(x(2),y(2)) +dprod(x(3),y(3))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vol =vol +x (jl) * (dprod (y (m), z (n)) -dprod (y (n), z (m)))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oppedelehie opiehtacii b tp-ke trl po tp-ku tr2
                                                   common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bybod dlq bizualizacii i ihteppolqcii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      parameter (maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f (next (mark, trl), eq.tr2) return
                                                                                                                                                                                                                                                                              a(10,11)=r(11, sites(10, tgl))
                                                                                                                                                                                                                                                                                                 call mal4a(3,3,0,a,3,rhs,x,1w,w,+1)
                                                                                                  real a(3,3),rhs(3),!w(3),w(6),x(3)
Ind(1)=mod(1,3)+1
                         common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       integer function mark(trl,tr2)
                                                                             common /cones/ vec(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real function volum(x,y,z)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           real function scal(x, y)
  integer next, sites, tgl
                                                                                                                                                                                                                                                                                                                                                       vec()1, tgl) =x()1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            n=mod (j1+1, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           volume = (x, {y, z})
real x(3), y(3), z(3)
real*8 vol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              integer next, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ^;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  m-mod (31, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subroutine output
                                                                                                                                                                                                                                                       do 10 11-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ob'em co zhakom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        integer trl,tr2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 10 mark-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      real x(3),y(3)
                                                                                                                                                                                                    do 10 10-1,3
rhs(10)-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cont I nue
                                                                                                                                                                                                                                                                                                                                  do 20 jl=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 10 31-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        scal = (x,y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     volum-vol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  stop 51
                                                                                                                                                                                                                                                                                                                                                                              return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vol-0
                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                              20
                                                                                                                                                                               ppobepka kpugobogo kpitepig:
popadaet ii to-ka st b kohuc, opicahhyj bokpug tp-ka tg ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         by-iciq'tcq kompohehty bektopa, happablehhogo bdolx oci opicahhogo bokpug tp-ka tgl kohuca i ine'lego taku' dilhu, 'to ego ckalqphoe ppoizbedehle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        next (mark (next (ma2, tga), tga), next (ma2, tga)) =tgb
next (mark (next (mb2, tgb), tgb), next (mb2, tgb)) =tga
                                                                                                                                                                                                                                                                                                                                common /points/ nst,r(4,maxst)
common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ![(scal(r(1,st),vec(1,tg)).gt.1) then
                                                                                                                                                                                                                                                                                 parameter (maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          parameter (maxst *70000, maxtr = 2 maxst)
                                                                                                                                                                                                                           ecli popadaet, to criter - .false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               integer next, sitos, tga, tgb, shi
                                                                                                                              logical function criter(tg, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sites (ma3, tga) -sites (mb1, tgb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sites (ma3, tgb) *sites (mb2, tgb)
sites (ma1, tgb) *sites (ma1, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sites (ma2, tgb) -sites (ma3, tga)
                                                                                                                                                                                                                                                                                                                                                                                     common /cones/ vec(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          next (ma2, tgb) "next (ma2, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (mal, tga) -next (mb2, tgb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   next (mal, tgb) -next (mb3, tgb)
                            1f(nxt.ne.tgl) goto 1010
                                                                                                                                                                                                                                                                                                           integer next, sites, tg, st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    subroutine flip(tga,mal)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subroutine circle (tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       criter..false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    next (ma2, tga) -tgb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           next (ma3, tgb) -tga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sh1 (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgb-next (mal, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mbl -mark (tgb, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      criter -, true,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ma2-shl (mal)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mb2-sh1 (mb1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ma3-sh1 (ma2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mb3-sh1 (mb2)
end lf
                                                     return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
```

parameter (maxst=70000, maxtr=2°maxst)

bektopami obpazu'jix kohuca pabho 1.

parameter(maxst=70000, maxtr=2*maxst)

```
j2 = lord(!3)
write (7,*) sites(1, j2), sites(2, j2), sites(3, j2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common /net/ ntr.next(3,maxtr),sites(3,maxtr)
common/extremum/rmin,rmax,radius,rad_ex
common /bid/ radv(maxtr),lord(maxtr)
               common /points/ nst,r(4,maxst)
common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           continue
write (7,*) ntr7,nst
do 71 j2=1,nst
write (7,*) ((r(i1,j2)*r(4,j2)),i1=1,3)
                                                                                                                         write (7,*) ntr,nst
do 10 j2=1,nst
write (7,*) ((r(11, j2)*r(4, j2)),11=1,3)
                                                                                                                                                                                                                                                                                  write (2) ntr,nst
write (2) ((sites(10,k0),10=1,3),k0=1,ntr)
write (2) ((next(10,k0),10=1,3),k0=1,ntr)
close(2)
close(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(.not.addpts) stop
write (2) ntr.nst
write (2) (sites(10,k0),10=1,3),k0=1,ntr)
write (2) ((next(10,k0),10=1,3),k0=1,ntr)
close(2)
return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parameter(maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(frametr(1,r,sites)) goto 70
ntr7 * ntr7 + 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                         if (.not addpts) stop
integer next, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 integer next, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                             subroutine output1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 70 1 - 1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          logical frametr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
do 72 i3-1,ntr7
                                                    logical addpts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       logical addpts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lord(ntr7) = 1
                                                                                        addpts .. true.
                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             addpt s., t rue.
                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                          close (7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ntr7 = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            close (7)
                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                 2
                                                                                                                                                                                                                                        =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,0
```

logical function frametr(nt,r, sites)
real r(4,1)
integer sites(3,1)
frametr=.false.
do 1 k=1,3
frametr=frametr.or.(r(4, sites(k,nt)).ge. 1.5-(1.d-5))
continue
return
end

```
call search(tgl,nst+1,ok,mk,r,next,sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          write(8,*) 'can not add points'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(bad(nt,rma,radlus,clrcle)) goto 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    print ",' can not add points'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call search (ngl, nss+1, ok, mk, r, next, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   If (border (ngl, r, sites, radius)) goto 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ra= (center (2, nt) -center (2, 1)) **2+ra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call search(tgl,nss,ok,mk,r,next,sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f (border (tgl, r, sites, radius)) goto 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ra= (center (1, nt) -center (1, 1)) **2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (border(tgl, r, sites, radius)) goto 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1f(bad(1,rav,radius,circle)) goto 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 24 1=1,ntr
lf(bad(1,rma,radius,circle)) goto 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (ra.lt.rav) goto 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(.not.ok) goto 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r(1, nss+1) *center(1, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        r (2, nss+1) =center (2, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(.not.ok) goto 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r(2, nst+1) -center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(nt.gt.1) goto 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           r(1, nst+1) -center(1,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f (naver.eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   If(.not.ok) goto 24
                              Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           r(1, nss) "center(1,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   r (2, nss) -center (2, 1)
                                                                                                                         integer tgl, temp
logical ok, frame, bad, border
                                                  radius (1), center (2, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ral-max(ral, radius(1))
                                                                                                                                                                                               1f (madst.le.nst) return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rma-aver/(1.01*naver)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 644 k-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nt-next (k, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aver-aver+radius(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       r (3, nst +1) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       r (3, nss) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 789 1-1, nt.r
                                                                                                     integer lord(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ngl-tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nss=1+nc+nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      naver-naver+1
                                                                             real radv(1)
      real r (3, 1)
                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                    nst0-ast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                      rav-rvmin
                                                                                                                                                                                                                                                                                              rina-rav
                                                                                                                                                                                                                                                                                                                                                                                      ral-0d0
                                                                                                                                                                                                                                                                                                                                                                                                                naver=0
                                                                                                                                                                                                                                                                                                                                                                                                                                      aver.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                               t d ] - ]
                                                                                                                                                                                                                                                                                                                                                                  0-ou
                                                         real
                                                                                                                                                                                                                                             2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5678
                                                                                                                                                                                                                                                                                                                                                              888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 644
                                                                                                                                                                                                                                                                          common /workl/ radlus, conter, radv, lord
common /lider/ lfo, isu, nmi0, xmax, xmin, ymax, ymin, zmax, zmin, grid,
medst, rdmax0, idra, i*in, idrm, msav, ilg, miner, kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call addual(madstl,rdmax,r,next,sites,radius,center,radv,lord)
write(8,15)'the number of the points after adding is ',nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       write(8,*)' 40 30'
write(8,*)' adding of dual points:'
write(8,15) 'the number of the points before adding is ',nst
                                                                                                                                                                                                                                                                                                                                                                                                        open(3,flle",addual',status"'unknown',form"'unformatted')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      write (3) ((sites(12,int(lord(13)) ),i2=1,3),i3=1,ntr7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - ', madst,' <---'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(madst.gt.maxst) then
print ','---> dimension maxst is too small <---'
print ','---> put maxst - ',madst', <---'</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hit right mouse button to continue'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print ', 'That is the trap'
print ', 'draw the new triangulation ?'
                                                                                                                                                                                      Integer next (3, mmaxtr), sites (3, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                write (3) ((r(12,13),12-1,3),13-1,nst)
                                                                                                                                                                                                                                       real radius (mmaxtr), center (2, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6:,next, sites, radius, center, radv, lord)
parameter (rumin=1e-8, rumax=0.7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(!drl.ne.0) call dtrl(150,r,sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the job is done
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            If (radius (ntl).ge.rdmax) goto 3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --->', ntr7,'trlangles
                                                                                                                                                                                                                                                             real radv (mmaxtr), lord (mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subroutine addual (madst, rdmax,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        adding of dual points
                                                                                                                                                                                                               common/lala/next,sites,r
                                                                                                                                                                                                                                                                                                                                                         , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call getans (idrl)
                                                                                                                    , mmaxtr=2 maxst)
                                                                                                                                      common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call plide: (' addual')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /points/ nst,ntr
                                     adding of dual points
                                                                                            parameter (maxst = 70000
subroutine add (msize)
                                                                                                                                                                                                                                                                                                                                                                                                                           open (8, [1]e='text')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   madstl - nst msize
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (1dra.1t.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        write (3) ntr7,nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ^---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 3777 nt1-1,ntr
                                                                                                                                                                  real r(3, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lord (nt r7) =nt l
                                                                                                                                                                                                                                                                                                                                                                                                                                                 call glider
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ormat (a, 17)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nt r7-nt r7+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *rite(8, •)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              print ., .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print ., %
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             idr:-idra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      close (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    close (8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       stop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ntr7-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
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graphics.f

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integer menuval, exitmode, pictmode, pointmode
                                                                                                                                                 common/mode/ exitmode, pictmode, pointmode
                                                                                                                                                                              common/extremum/rmin, rmax, radius, rad_ex
integer exitmode.plctmode, pointmode
integer*2 val, mx, my
integer dev
                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 1001 while (qtest() .eq.0)
               rad_ex = x1+w/8 +rmin*w*0.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(exitmode .eq.0)goto 6
                                                                                                                                                                                                                                                                                                do 1000 while (dev .ne. 0)
                                                                                                                                                                                                                                                                                                                                     if(dev .eq. LEFTMO) then
if(val .eq. 1) then
                                                                                                                                                                                                                                                                                                                                                                                                              call move_shtrih(mx, my) call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               If (menuval .eq.4) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f (menuval .eq.5) then
                                                                                                                                                              common/popup_stuff/menu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (menuval.eq.6) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (menuval .eq.3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (menuval .eq.2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(dev.eq.RIGHTM) then
menuval = dopup(menu)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (menuval .eq.1) then
pictmode= 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call remove_point
                                                                                           subroutine process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call add_point
                                                                                                                                                                                                                                                                                                                     dev - qread(val)
                                                                                                                                                                                                                                                                                dev - qtest ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pictmode= 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pictmode= 3
                                                                                                                              finclude<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                           1 = gread(mx)
k = gread(my)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exitmode =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call Draw
mcolor = 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call Draw
                                                                                                            include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1000 end do
6 return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end lf
end lf
                                      return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end !f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e],e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call addtop(menu, DATA CHANGE %tiWIRED MODEL!MAP!SMOOTH MAP',50,0) call addtop(menu, add point!remove point!EXII ',50,0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      parameter (NORMAL = 1, HOLE = 0)
parameter (w = 0.45, h = 0.1, x1 = 1.6, y1 = -0.6, d1st = 0.18)
                                                                                                            common /net/ ntr, next (3, maxtr), sites (3, maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         common/mode/ exitmode, pictmode, pointmode
                                                                                                                                  common/mode/ exitmode, pictmode, pointmode
                                                                                                                                                 common/extremum/rmin,rmax,radius,rad_ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            common/extremum/rmln,rmax,radlus,rad_ex
                                                 parameter(maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    common/col/ color, mcolor, legend (3,13)
                                                                                                                                                                     integer exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common/popup_stuff/menu
integer exitmode,pictmode,pointmode
real backvec(3)/0.0,0.0,0.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common/shtr1/ sh(4), co(3), con(3)
                                                                                             common /points/ nost, r(4, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tie (RIGHTM, MOUSEX, MOUSEY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tie (LEFTMO, MOUSEX, MOUSEY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 winope ("geosphere", 13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/rots/ angl (7), pov (3)
                                                                                                                                                                                                                                                                                                                                                          call process
If(exitmode .eq.0)goto 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call prefpo (0,1270,0,1000)
subroutine graphics (igid)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           lsetde (0, S7fffff)
                                                                                                                                                                                                                                                                call swapbu
do while(1)
do while(qtest(0).eq.0)
call Draw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subroutine init (191d)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              zbuffe (.TRUE.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qdev1c (RIGHTM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qdevic (LEFTMO)
                                                                           integer rext, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pointmode - NORMAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call c3f (backvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sh(1) = x1+0.001
do 16 1 = 5,7
                                                                                                                                                                                                          call init (igid)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            menu • newpup()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 12 1 - 2,4
               #include<fgl.h>
#include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    # include < fdevice. h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exitmode - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    angl(1) - x1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  toregr
                                                                                                                                                                                                                                                call zclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pictmode= 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RGBmod
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gconf1
                                                                                                                                                                                                                             call clear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'include<fq1.h>
                                                                                                                                                                                                                                                                                                                                                                                                end do
                                                                                                                                                                                                                                                                                                                                          end do
                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call
lg1d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call
call
call
call
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S

color - xl+w

12 9

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common/col/ color,mcolor,legend(3,13)
common/extremum/rmln,rmax,radlus,rad_ex
parameter(w = 0.45, h = 0.1,xl = 1.6,yl = -0.6,dist = 0.18)
parameter(d1 = 0.005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        common/shtr1/ sh(4), co(3), con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real redvec(3)/1.0,0.0,0.0,
real bluevec1(3)/0.0,0.0,1.0/
real greyvec(3)/C.8,0.8,0.8/
real blackvec(3)/0.0,0.0,0.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                real bluevec(3)/0.0,0.8,1.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       common/rots/ angl (7), pov (3)
                                                                                                                                                                                                                                trans1 (-2.0,0.0,0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subroutine palette(idmat)
                                                                                  rotate (-900, 'y')
                                                                                                                                                                                                                                               rotate (-900,'y')
                                                                                                  c3f (greenvec)
                                                                                                                            v3f(kvadrat1)
                                                                                                                                                                                                                                                                                        v3f(kvadrat1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          real legend (3,13)/
v3f (kvadrat2)
             v3f (kvadrat3)
                           v3f(kvadrat4)
                                                                                                                                           v3f (kvadrat2)
                                                                                                                                                        v3f (kvadrat3)
                                                                                                                                                                       v3f(kvadrat4)
                                                                                                                                                                                                                                                             c3f (greenvec)
                                                                                                                                                                                                                                                                                                       v3f (kvadrat2)
                                                                                                                                                                                                                                                                                                                    v3f (kvadrat3)
                                                                                                                                                                                                                                                                                                                                   v3f (kvadrat4)
                                                                                                                                                                                                                                                                                                                                                                                            call make_metka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60.0,0.0,1.0,
60.0,0.6,0.6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call popmat
                                                                                                                                                                                                                                                                                                                                                                                                          call popmat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,8.0,0.0,0.0,
                                         endclo
                                                                                                                                                                                      endclo
                                                                                                                                                                                                                                                                            bgnclo
                                                                                                                                                                                                                                                                                                                                                 endclo
                                                        popmat
                                                                                                                 bgnclo
                                                                                                                                                                                                                   pushma
                                                                                                                                                                                                                                                                                                                                                                                                                          call swappn
                                                                      pushma
                                                                                                                                                                                                     popmat
                                                                                                                                                                                                                                                                                                                                                                              opt
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                                                                                                                                                                                      cal1
                                                                                                                                                                                                     call
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                                                                                                 call
                                                                                                                                                                       call
                                                                                                               call
                                                                                                                                            call
                                                                                                                                                          call
                                                                                                                             ca]]
                                                                                                 common/shtr1/ sh(4),co(3),con(3)
common/rots/ ang1(7),pov(3)
common/col/ color,neolor,legend(3,13)
common/extremum/fmin,rmax,radlus,rad ex
character string1*5,string2*5,string3*5,string4*5
real backvec(3)/0.0,0.0,0.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ortho(-1.5,2.1,-1.5,1.5,-1.5,1.5)
                                                                                                                                                                                                                                                                                                        real kvadrat1(3)/-1.0,-1.0,-1.0/
                                                                                                                                                                                                                                                                                                                   real kvadrat2(3)/-1.0,1.0,-1.0/
real kvadrat3(3)/1.0,1.0,-1.0/
real kvadrat4(3)/1.0,-1.0,-1.0/
                                                                                                                                                                                     real greenvec(3)/1.0,1.0,1.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cmov ( 1.03,-1.03,-1.03)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cmov (-1.03,-1.03,-1.03)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              charst (stringl,5)
cmov (-1.03,1.03,-1.03)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cmov (-1.03, -1.03, 1.03)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transl (0.0,0.0,2.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           charst (string2,5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       charst (string3,5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     charst (string4,5)
                                                                                                                                                                                                                                                                                                                                                                                            write(stringl,*)'X'
write(string2,*)'Y'
write(string3,*)'Z'
write(string4,*)'O'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rot (pov (5,,'x')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rot (pov (6),'y')
rot (pov (7),'z')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             palette(idmat)
                                                                                                                                                                                                                                loadma (1dmat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c3f (greenvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v3f(kvadratl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c3f (greenvec)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              v3f(kvadrat2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             v3f (kvadrat3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            v3f (kvadrat4)
                                                                                                                                                                                                                    real idmat (4,4)/
                                                                                                                                                                                                                                                                                                                                                                                                                                                      call c3f (backvec)
                                                        subroutine Draw
                                                                                     #include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call zclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pushma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bgnclo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pushma
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     clear
                                                                      •include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ca 1 1
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Call
Call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cal)
```

```
common/extremum/rmin, rmax, radius, rad_ex parameter (w = 0.45, h = 0.1,x1 = 1.6,y1 = -0.6,dist = 0.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        subroutine move shtrih (mx, my) parameter (NORMAL = 1, HOLE = 0) parameter (w = 0.45, h = 0.1,x1 = 1.6,y1 = -0.6,dist = 0.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metky na shkale radiusov

x4(1) = x1

x4(2) = x1+w/8

x4(3) = x4(2) + rmin * 0.875 *w/1.5

x4(4) = x4(2) + rmax * 0.888888885 *w/1.5

x4(5) = x4(2) + 0.875 *w/1.5

x4(6) = x1+w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        common/col/ color, mcolor, respond (3,13)
common/mode/exitmode, plctmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 common/extremum/rmin, rmax, radius, rad_ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cal! rectf(angl(!), y0, angl(!) +del, y0+h)
                                                                                                                                                                                                                                                                                                      common/col/ color, mcolor, legend (3,13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          call rectf(rad_ex,y0,rad_ex+del,y0+h)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   integer exitmode, pictmode, pointmode
real whitevec(3)/1.0,1.0,1.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call rectf(color, y0, color+del, y0+h)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call rectf(sh(1), y0, sn(1) +del, y0+h)
                                                                                                                                                                                                                                                                 common/shtr1/ sh(4),co(3),con(3)
            call rectf(x5,y-h,x5+w1,y)
x5 = x1 + +w/8+rmax*w*0.875/1.5
call c3f(redvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/shtr1/ sh(4),co(3),con(3) common/rots/ angl(7),pov(3)
                                                                                                          cmov (x1-0.07, y-h-0.04, 0.1)
charst (string (8), 30)
                                                                                                                                                                                                                                                                                                                                                                              real blackvec(3)/0.0,0.0,0.0,0
                                                                                                                                                                                                                                                                                 common/rots/ angl (7), pov (3)
                                                                        rectf(x5,y-h,x5+w1,y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yo - y1 + dist*i + h* (1-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      y0 - y1 + dist*1 + h*(1-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     y0 - y1 + dist*i + h* (1-1)
                                                                                                                                                                                                                                                                                                                                                            parameter (del = 0.005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 parameter (del = 0.005)
c3f(b)uevec1)
                                                                                          c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                      y0 - y1-h
call c3f(blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call clf(blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call c3f (blackvec)
                                                                                                                                                                                                                                               subroutine shtrih
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        real x3(13),x4(6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Integer*2 mx, my
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 11 1 = 2,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 15 1 = 5,7
                                                                                                                                                   call shtrih
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                     return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
                                                                                            call
                                                                                                                                 cali
                                                                          call
                                                                                                               call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ξ
                                                                                                          X rotation 360'
Y rotation 360'
2 rotation 360'
                                                   ( coordinate 1'
coordinate 1'
coordinate 1'
                                                                                                                                                                        rmax
                                                                                                                                                                                                                                                                                                                                            rect f (x-d), y-d), x+w+d), y+h+d))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rect f (x-dl, y-h-dl, x+w+dl, y+dl)
                                   radius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call rectf(x, y-h, x+w2, y-h+h1)
x5 * x1 + w/8 +rmin*w*0.875/1.5
                                                                                                                                                                 3), *)'Hole rmin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call rectf(x2,y2,x2+w1,y2+h1)
                                                                                                                                                                                                          rectf (1.5,-1.5,2.1,1.5)
                                                                                                                                                                                                                                            rec.f(1.5,-1.5,2.1,1.5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call rectf(x, y, x+w/12., y+h)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rect f (x, y-h, x+w/8, y)
                                                                                                                                                                                                                                                                                                                                                                                                                                        charst (string(1), 30)
                                     write(string(1), *)'rmin
                                                                                                                                                                                                                                                                                                                                                                                                                      cmov (x1, y-0.04,0.1)
                                                                                                                                                                                                                                                                                       x = x1

y = dist^{-1} + h^{+}(i-1) + y1
                                                                                                                                                                                                                                                                                                                                                                                   rect f (x, y, x+w, y+h)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 y2- dist*k + h* (k-1)+y1
do 23 j - 1,11
                                                 write(string(2),*)'0
write(string(3),*)'0
write(string(4),*)'0
write(string(4),*)'0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call c3f(legend(1, 1+1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rectf(x, y-h, x+w, y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      If (mod(), 6) .eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1f (mod(j, 3) .ea.0) then
character*40 string(8)
                                                                                                                          1,1,0
                                                                                                                                              0, (. '(
                                                                                                                                                                                        call c3f (blackvec)
                                                                                                                                                                                                                                                                                                                          call c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                     c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call c3! (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call c3f (blackvec)
                                                                                                                                                                                                                              c3f (greyvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call c3f(blackvec)
                                                                                                                                                                                                                                                                                                                                                               c3f (bluevec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c3f (bluevec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 22 3 = 0,11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x * x1+W/12.*3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x2" x1+w/12.";
                                                                                                                                                     write(st. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 21 k = 2,7
                                                                                                                                                                                                                                                                   do 20 1 - 1,7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               y . dist +yl
                                                                                                                                                                       write (stri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *1 - 0.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #1 - 0.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *2 - 0.004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - 0.03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 - 0.02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      h1 - 0.01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hl - 0.03
                                                                                                                                   write(st
                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
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x
x
x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        × • ×
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                                                                                                                                                                                                                                                                                                                                                                                                     call
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e]se
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
                                                                                                                                                                                                                               call
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                                                                                                                                                                                                                                                                                                                                                                                   call
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call
                                                                                                                                                                                                              call
```

2

23

23

graphics.f

return

```
parameter (w = 0.45, h = 0.1, x1 = 1.6, y1 = -0.6, d1st = 0.18)
                                                                                                                                                                                                                                                                                                          real metkal (3), metka2 (3), metka3 (3), metka4 (3), metka5 (3) 
real metka6 (3), metka7 (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    radlus = ((color - x1)/w,*(rmax-rmin)+rmin

s1 =sqrt (10.0/(1.e-10*x**2*y**2*z**2))

beam(1) = s1*con(1)

beam(2) = s1*con(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 """ on the beam"
metkal(1) = -con(2) piram+radius*con(1)
metkal(2) = con(1) piram+radius*con(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      metka5(2) = radius*con(2)
metka5(3) = con(1)*piram*radius*con(3)
metka6(1) = con(3)*piram*radius*con(1)
metka6(2) = radius*con(2)
metka6(3) = -con(1)*piram*radius*con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                metka4(2) = con(3)*piram+radius*con(2)
metka4(3) = -con(2)*piram+radius*con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - -con (3) *piram+radius*con(1)
                                                                                                                                                                                                                                                          common/extremum/rmin,rmax,radius,rad_ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     metka2(2) - -con(1) piram+radius*con(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  - -con(3) plram+radius con(2)
                                                                                                                                                                                        common/mode/exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                metka2(1) = con(2)*piram+radius*con(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       - con(2) *piram+radius*con(3)
                                                                                                                                                                                                                                         common/col/ color, mcolor, legend (3,13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               metka7(1) = (4*piram+radius)*con(1)
metka7(2) = (4*piram+radius)*con(2)
metka7(3) = (4*piram+radius)*con(3)
                                                                                                                                                                                                                                                                                      integer exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                 .....calc of the position of the beam
                                                                                                                                                                     common/shtr1/ sh(4), co(3), con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      If (pointmode .eq. NORMAL) then
                                                                                                  parameter (NORMAL = 1, HOLE = 0)
                                                                                                                                                                                                                                                                                                                                                                                                    real greenvec(1)/1.0,1.0,1.0/
real zero(3)/0.0,0.0,0.0/
                                                                                                                                                                                                                    common/rots/ angl (7), pov (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          metkal (3) - radius con (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - radi is con (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             metka2(3) - radius con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          * radius*con(1)
                              subroutine make_metka
                                                                                                                                             parameter (piram .. 015)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call c3f (greenvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                v3f (metkal)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       v3f (metka2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               v3f (metka7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    v3f (metkal)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           v3f (met ka3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call v3f (metka4)
                                                                           # Include < fdevice. h>
                                                                                                                                                                                                                                                                                                                                                     real beam (3)
                                                                                                                                                                                                                                                                                                                                                                              Integer•4 n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call bgnpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bgnpo l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              endpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            metka4(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          metka3(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               met ka3 (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     met ka3 (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      motka5(1)
                                                   • Include< fgl. h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ca 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           • • • • • • •
                                                                                                                                         if (y.le. (y1-h).or. x.lt.xl .or.x .gt. xl+w ) then
                                                                                                                                                                                                     n = int ((y - yi) / (dist+h)) + i

if (y - (yi + dist*n +h* (n-i)) .ie.0) n = -i

if (y .ie.yi .and. y .gt.yi-h) n=0

if (n.eq.0, then

do 20 i = i,6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ....calc of the position of the point on the beam*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        radius = ((color - x1)/w)*(rmax-rmin)+rmin
mcolor = ((color - x1)/w)*11.*1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .....calc of the position of the normal.vec .
s "sqrt(1.0/(1.e-10****2*y**2*z**2))
                                                                                                                                                                                                                                                                                                                           1f ((abs (x-x4(1))).le.2*del)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             co(1) = ((sh(2) - x1)/m)*2. - 1.
co(2) = ((sh(3) - x1)/m)*2. - 1.
co(3) = ((sh(4) - x1)/m)*2. - 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pov(!) - ((angl(!) - x1)/w) - 360
x = (3.6/1270) *float (mx) = 1.5
y = (3.0/1000) *float (my) = 1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              If ((abs (x-x3(1))).le.del)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (pointmode .eq.NORMAL) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              If (n.ge.5 .and.n.le.7) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         If (n. 1e. 4. and. n. ge. 2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call make_change_back
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   co(1) - con(1) *radius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         co(2) - con(2) radius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              co(3) - con(3) radius
                                                                                                                                                                                                                                                                                                                                                                                                                                        rad_ex = x
call_make_change(x4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x3(1) = x1+(w/12)*1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (n.eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 17 1 = 0,12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 14 1 - 5,7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   con(1) = s*x
con(2) = s*y
con(3) = s*z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  angl(n) · x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sh (n) x x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       color - x
                                                                                                                                                                                                                                                                                                                                                  - x4(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        x • x3(1)
                                                                                                                                                                                                                                                                                                                                                                                                                       cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      x = co(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           y = co(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                z = co (3)
                                                                                                                                                                                                                                                                                                                                                                      goto 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           goto 18
                                                                                                                                                                                                                                                                                                                                                                                               end 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ji pua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end if
                                                                                                                                                                7 . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end
                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
```

```
mcol = 12.* (r (4, sites (j, i)) - rmin) / (rmax-rmin) +)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mcol = 12.* (r(4,sites(),1)) - rmln)/(rmax-rmln)+1
1f(mcol.lt.1)mcol = 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x(1) = r(1, site. (), 1)) *r(4, sites(, 1))
x(2) = r(2, sites(), 1)) *r(4, sites(), 1)
x(3) = r(3, sites(), 1)) *r(4, sites(), 1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ******** TAOOTH MAP MODEL ********
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x(1) = r(1, sites(j, 1)) *r(4, sites(j, 1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              x(2) = r(2, sites(j, 1)) *r(4, sites(j, 1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                              *********** WIRED MODEL *******
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (r (4, sites (k, i)).gt.1.5) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (r (4, sites (k, 1)).gt.1.5)then
                                                                                                                                                                                                           x(1) = r(1, sites(j, 1)) *r_av
x(2) = r(2, sites(j, 1)) *r_av
x(3) = r(3, sites(j, 1)) *r_av
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call clf(legend(1,mcol))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f (mcol.gt.12)mcol = 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (pictmode.eq.1) then
                                                           do 932 j = 1,3
r av~r(4,sites(j,1))
if(r av.ge.1.5) then
x(1)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (pictmode.eq.3) then
                         call c3f (bordovec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           do 40 1 - 1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f(zl.eq.1)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 ( z l . eq . l ) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 50 1 - 1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 - 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          do 52 j = 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 41 k - 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 51 k = 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call bgnclo
                                            call bgnpol
                                                                                                                                                                                                                                                                                                                                      call endpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call endelo
                                                                                                                                                                                                                                                                                              call v3f(x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call bgnpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call v3f(x)
                                                                                                                                                                                                                                                                                                                   continue
                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cont I nue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                    x (3) =0
                                                                                                                                                   x (2) *0
                                                                                                                                                                                                                                                                                                                                                                             and 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                             end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0 - 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dc 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and if
                                                                                                                                                                                                                                                                            endif
                                                                                                                                                                                         else
                                                                                                                                                                                                                                                                                                                                                                                                                        ဥ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                   932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r_av = (r(4,sites(1,1))+r(4,sites(2,1))+r(4,sites(3,1)))/3.
mcol = 12.*(r_av - rmin)/(rmax-rmin)+1
call c3f(legend(i,mcol))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     y1(1) = r(1,sites(sh(k+1),1)) r(4,sites(sh(k+1),1))
y1(2) = r(2,sites(sh(k+1),1)) r(4,sites(sh(k+1),1))
y1(3) = r(3,sites(sh(k+1),1)) r(4,sites(sh(k+1),1))
y2(1) = r(1,sites(sh(k+2),1)) r(4,sites(sh(k+2),1))
y2(2) = r(2,sites(sh(k+2),1)) r(4,sites(sh(k+2),1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                y2(3) = r(3,sites(sh(k+2),1))*r(4,sites(sh(k+2),1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common/mode/exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - r(1, sites(j, l))*r(4, sites(j, l))
- r(2, sites(j, l))*r(4, sites(j, l))
- r(3, sites(j, l))*r(4, sites(j, l))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/extremum/rmin, rmax, radius, rad_ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  parameter (maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common/col/ color, mcolor, legend (3, 13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/shtr1/ sh(4), co(3), con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ...... T300M HAP MODEL ......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f(r(4, sites(k, 1)).gt.1.5) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    common /points/ nost, r (4, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               real bordovec (3) /0.0,0.0,0.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            common/rots/ angl (7), pov (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Integer pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (pictmode.eq.2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   real x(3),y1(3),y2(3)
                                                                                                                                                                                                                                call c3f (greenvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Integer next, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            If(zl.eq.1) then
Call v3f (metka7)
                       v3f (metka3)
                                                                                   v3f (metka5)
                                                                                                        v3f (metka6)
                                                                                                                           v3f (metka7)
                                                                                                                                                 call v3f (metka5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real idmat (4, 4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 30 1 = 1,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 - 1,3
                                                                                                                                                                                                                                                                         v3f (zero)
                                                                                                                                                                                                                                                                                                                                                                                                                    subroutine Obj
                                                                                                                                                                                                                                                                                            call v3f (beam)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 31 k - 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                              #Include<fdevice.h>
                                                                                                                                                                                                                                                   call bonlin
                                                                                                                                                                                                                                                                                                                 call endlin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call bgnpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call endpol
                                            endpol
                                                               banpol
                                                                                                                                                                    call endpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call v3f(x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           integer zi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                         finclude< (gl. h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21 - 0
                                                                                                                                                                                       end 1f
                                                                                                                                                                                                                                                                                                                                      return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             × (2)
                                                                                                                                                                                                              bean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (C) ×
                                                                                 call
                                                                                                                           C3 1 1
                                          C# 11
                                                                                                                                                                                                                                                                         call
                                                               Ca1]
                                                                                                        C. 2. 1.
                                                                                                                                                                                                             •••••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
```

- r(3, sites(j, 1)) *r(4, sites(j, 1))

x (3)

C3 11

c3f (legend(1, mcol))

call v3f (x)

.

graphics.f

parameter(w = 0.45, h = 0.1,x1 = 1.6,y1 = -0.6,d1st = 0.18)

```
parameter(NORMAL = 1, HOLE = 0)
parameter(maxst=70000, maxtr=2°maxst)
parameter(w = 0.45, h = 0.1,xl = 1.6,yl = -0.6,dlst = 0.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(pointmode .eq. NORMAL) r(4, nost) = radius
if(pointmode .eq. HOLE) r(4, nost) = 10.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common/mode/ exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common/rots/ angl(7), pov(3)
common/col/ color, mcolor, legend (3,13)
common/extremum/rmin, rmax, radius, rad_ex
integer exitmode, plctmode, pointmode
integer next, sites, tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subroutine remove_point
parameter(maxst=70000, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/shtr1/ sh(4),co(3),con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     common /points/ nost, r (4, maxst)
                                                                                                                                                                                                                                                  x(1) = r(1, sltes(j, l))*r_av
x(2) = r(2, sltes(j, l))*r_av
x(3) = r(3, sltes(j, l))*r_av
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call search(tgl,nost,ok,mk)
                                                                                               do 952 j = 1,3
rav=r(4,sites(j,l))
if(rav.go.1.5) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subroutine add_point
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call bar(tgl, nost, mk)
                                                            call c3f (bordovec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      r(1, nost) - con(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r(2, nost) = con(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r(3, nost) - con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call recon(tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nost - nost+1
                     call endpol
                                                                                 call bgnpol
                                                                                                                                                                                                                                                                                                                                    111 v3f(x)
                                                                                                                                                                                                                                                                                                                                                                               call endpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           I ( (ok ) then
                                                                                                                                                                                                                                                                                                                                                                                                                   end if
continue
                                                                                                                                                                                                                                                                                                                                                           nt 1 nue
 cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               logical ok
                                                                                                                                                                                                           x (3) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return
                                                                                                                                                                       x(1)=0
                                                                                                                                                                                          (S) ×
                                                                                                                                                                                                                                                                                                                  ad I C
                                            e l se
                                                                                                                                                                                                                                   else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  191 -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       II pua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end
25
                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                           95,
```

```
parameter(maxst=70000, maxtr=2*maxst)
parameter(w = 0.45, h = 0.1,xl = 1.6,yl = -0.6,dlst = 0.18)
common /points/ nost,r(4,maxst)
common /net/ ntr,next(3,maxtr),sltes(3,maxtr)
paraneter(plram.015)
common /points/ nost,r(4,maxst)
common /net/ ntr.next(3,maxtr),sites(3,maxtr)
common/mode/ axitmode,pictmode,pointmode
common/shtil/ sh(4),co(3),con(3)
common/rots/ angl(7),pov(3)
                                                                                                                                                                                                                                                logical ok radius = ((color - xl)/w)*(rmax-rmin)+rmin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             radius = ((color - x1)/w)*(rmax-rmin)+rmin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       common/mode/ exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common/extremum/rmln, rmax, radius, rad_ex
                                                                                                                                        common/col/ color, mcolor, legend (3,13)
common/extremum/rmin, rmax, radius, rad ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             common/col/ color, mcolor, legend (3,13)
                                                                                                                                                                                              integer exitmode, pictmode, pointmode integer next, sites, tql
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              integer exitmode, pictmode, pointmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subroutine distance (rad, kmin, np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            common/shtr1/ sh(4), co(3), con(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                call search(tgl,nost+1,ok,mk)
                                                                                                                                                                                                                                                                                          r(1, nost+1) = con(1) *radius
r(2, nost+1) = con(2) *radius
                                                                                                                                                                                                                                                                                                                                         r(3, nost+1) = con(3) *radius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call distance (rad, m, nost+1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      common/rots/ angl (7), pov (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call search(tgl, np, ok, mk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Integer next, sites, tgl
                                                                                                                                                                                                                                                                                                                                                                r(4, nost+1) - radius
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     r(k, 1) = r(k, 1+1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n = sites(m,tgl)
do 70 l = n,nost-l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call bar (tgl, np, mk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call setbel (mbel)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           do 73 np = 5, nost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call recon(tql)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 71 k = 1,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nost - nost-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      real x(3),y(3)
                                                                                                                                                                                                                                                                                                                                                                                        rad - piram
tgl - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 f (ok) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call tetra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mbel = 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                logical ox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23
```

disti - 0

```
subroutine make_change(x4)
parameter(NORMAL = 1,HOLE = 0)
parameter(maxst=70000, maxtr=2*maxst)
parameter(w = 0.45, h = 0.1,x1 = 1.6,y1 = -0.6,dist = 0.18)
                                                                                                                                                                                                                                                                                                                                                                                                                                                if [rad_ex_.le.x4(3).and, rad_ex_.qe, x4(2)+2*del) then
rmin = [rad_ex-x1-w/8)*1.5/(0.875*w)
if [rmin_.le_.del] rmin = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(rad_ex .1t. x4(4) .and. rad_ex .gt. x4(3)) then
color = ((rad_ex-x4(3))*w/(x4(4)-x4(3)))*x)
                                                                                                                                                                                                                                                              lf(rad_ex.ge. x4(l),and.rad_ex.lt.x4(2)+del) then
                                                                                                                                                                                      common/mode/exitmode, pictmode, pointmode
                                                                                                                                                           common/extremum/rmin,rmax,radius,rad_ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rmax = [rad_ex-x1-w/8)*1,5/(0.875*w)
color = x1+w
                                                                                                                                  common/col/ color, mcolor, legend (3,13)
                                                                                                                                                                                                                                                                                                                                                                                                                            (fointmode .eq.NORMAL) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        If (rad_ex.gt.x4(4)) then
                                                                                                  parameter (del = 0.015)
                                                                                                                                                                                                                                                                                                                                                                        pointmode - HOLE
                                                                                                                                                                                                               Integer pointmode
                                                                                                                                                                                                                                                                                                                    radius - 10.0
                                                                                                                                                                                                                                                                                                                                                  mcolor = 13
                                                                                                                                                                                                                                                                                              color - x1
                                                                                                                                                                                                                                          real x4(6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      color - x1
                                                                                                                                                                                                                                                                                                                                                                                                      ) T pua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return
```

subroutine make change back parameter(maxst=70000, maxtr=2°maxst) parameter(w = 0.45, h = 0.1,xl = 1.6,yl = -0.6,dist = 0.18)

common/col/ color,mcolor,legend(3,13)
common/mode/exitmode,pictmode,pointmode

parameter (NORMAL = 1, HOLE = 0)

common/extremum/rmin, rmax, radius, rad_ex

```
integer pointmode
pointmode = NORMAL
radius = ((color - x1)/w)* (r.ax-rmin)+rmin
rad ex = radius*0.875*w/1.5 + x1*w/8
return
```

function sh(k)

sh = mod(k+2,3) + return

```
ismt 1 - errors are taken from the file with c r(...)
ismt 2 - errors are equal 1
ixill 0 - don't kill the peaks
ixill 1 - kill the peaks
istat 1 - take into account errors while killing peaks
istat 0 - don't take into account errors while killing peaks
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(!smt.ge.1) call smooth(r, wight, next, sites, work, minst, ismt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call interp(ntr),nstl,r,next,sites,tang,work,maxlv,maxst)
                                                           read(9, end-1010, err-1010) duml, dum2, dum3, wight (11p)
                                                                                                       *** errors have been read <***
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call preint (r, next, sites, radcir, tang, work, minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call smstat (istat, r, wight, next, sites, minst, work)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , ...,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print *,' take into account errors ?'
call getans(lpog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              print .,' take into account errors ?'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             write on the disk
                                                                                                                                                                                                                                                            if(!pik.eq.l.and.ismt.eq.l) istat=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call outint (ntrl, nstl, r, work)
                                                                                                                                                                                                                                                                                                         ismt = 0 - no smoothing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (lpog.ne.0) ismt = 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       print ., make smoothing call getans(11)
if(11.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(lpog.ne.0) istat=1
                  if(ipog.ne.0) then
do 7659 lip-l,nst-nbndp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                print *,' kill the peaks call getans(lpik)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(lpog.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call getans (lpog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f (1pog.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call plider (* interp
                                                                                                                                                                                                                    if(!pik.gc.1) ikill=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print ., ikill ,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if(ikill.eq.l) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      If(Ismt.lt.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (iplk.lt.0) then
                                                                                      continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end1 f
                                                                                                         print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 smt - 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1×111-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             print ','
end 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end1 f
                                                                                                                                                                           1 smt - kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             close (7)
                                                                                                                                  end1 f
                                                                                                                                                                                                  1×111m
                                                                                                                                                                                                                                             1stat-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end 11
                                                                                      7659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        υu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               υυ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           υυ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UU
                                                                                                                                                                                                                                                                                                                                                                   common/work1/ radcir,wight,tang
common/work1/ radcir,wight,tang
common /lider/ lic,isu,milO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
is madst,isu,milO,xmax,iwin,idrm,msav,iig,miner,kva
i jpik,ipog
parameter(maxiv*20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      open(9, [lle" rescales', status" unknown', form" unformatted')
open(8, [lle = 'text3')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           integer work(6*maxlv+9*maxst)
open(1,flle='tempor',status='unknown',form='unformatted')
open(2,flle='addual',status='unknown',form='unformatted')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    read (2 end=1010, err=1010) ((r(10,11),10=1,3),11=1,nstl)
print *,' =-=>',nstl,' points have been read'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(nst.gt.minst) then
print ','==> dimension minst is too small <==='
print ','==> put minst = ',nst ', <==='</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      write (8, .) The second input parameter is too small'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       print e,' ===> dimension maxst is too small <==='
print e,' ===> put maxst = ', nstl,' <==='
stop 18
                                                                                                             radeir - radius ** 2 of cilcle for each triangle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 write (8, 16)'', nstl,' points have been read'
                                                           'nst' - # points, 'r' - their coordinates 'ntr' - # triangles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    write(8,*)'Interpolation is not aloud'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            write(8,.) ' interpolation is done '
                                                                                                                                                                                                                                                                                             integer next (3, maxtr), sites (3, maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             read (2,end-1010,err-1010) ntrl,nstl
                                                                                                                                                                                                                                                                                                                                                             real radcir (maxtr), wight (minst)
                                                                                                                                  parameter (maxst=70000
                                                                                                                                                                                                                                                                                                                   common/lala/r,next,sites
                                                                                                                                                                                                                                                   common /points/ nst,ntr
                                                                                                                                                                             , maxtr-2 minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               open(7,file-'trlang')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               If (nstl.gt.maxst) then
                                                                                                                                                        ,minst = 70000
                                                                                                                                                                                                                                                                                                                                          real tang (nfunc, minst)
                                                                                                                                                                                                        parameter (nbndp-11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        write(8,*) '40 30'
                                                                                                                                                                                                                             parameter (nfunc=5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      goto 1020
write(8,*) '40 30'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call tryl ("text3")
      subroutine int ()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 format (a, 17, a)
                                                                                                                                                                                                                                                                          real r(3, maxst)
                                         interpolation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call glider
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               print ','
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (ormat (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   close (8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1020 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1010
```

stop 13

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tim. f
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Inteppolqciq: bzbe(ehhoe cpedhee ot tpex bep(ih
                                                                                                                                                                                                 call uprspl (nd, corner, nn, lord, mord, maxst, maxlv, x, lbf)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subroutine addpts(ntr),nstl,r,sites,tang,lord,list)
                                                                                                                                                                                                                                                            call searchint (nt, lord (np, 2) +nst0, r, next, sites)
***> points are beeng reordered <****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call wghts (h2, nt, np, r, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(nt.ge.0) goto 1010
print ', condition impossible'
                                                             order(1) = x (1d, 1)
call kb37a (order, nd, lord(1, 1d))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Integer lord(maxst),list(O:maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                          if (order (ns) .eq.nt) goto 1020
                                                                                                                    mord (lord (mm, 1d), 1d) - mm
                                                                                                                                                                                                                                                                                                                                                                                                                        lord (13, 1) =lord (ns, 1) +nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Integer lord(1).list(0:1) real h2(3),a(4,3),c(6,3)
                                                                                                                                                                                                                                                                                                                         call kb07a(order, nd, lord)
                                                                                                                                                                                                                                                                                order (lord (np, 2)) *nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 40 k0=1, nds
np=lord(k0+ns)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                   do 60 13-nst, nst0+1,-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nds=list(nt)-ns
if(nds.gt.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Integer sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                parameter(nfunc=5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 real tang(nfunc,l)
                                                                                                    do 30 mm=1, nd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11st (nt)=13
                    do 40 ld=1,2
do 20 l=1,nd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lord (14, 1) -14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sh (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
do 70 k0=0, nt -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 80 14-1, nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             goto 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              do 50 nt-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                       ns=13-nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nsct-nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11st (k0) -nst0
                                                                                                                                                                                                                         nt-1
do 50 np-1, nd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Integer st, sh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nt-nt-1
                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                           continue
                                                                                                                                                                                                                                                                                                                                                                list (nt) -nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ns-11st (0)
 print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70 continue
                                                                                                                                                                                                                                                                                                                                               nt -nt r1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       integer corner (4, maxlv), nn (2, maxlv), lord (maxst, 2), mord (maxst, 2)
                                                                                                                                                                                                                                                                                      subroutine interp(ntr),nstl,r,noxt,sites,tang,w,maxiv,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (ii.gr.maxlv) then
print ", "==> change parameters. put maxlv=', ii,' <==="</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - pogpelhoctl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print ','inn=',inn
print ','total memory =',inn+maxlv*2
call prepar(ntrl,nstl,r,next,sites,w(lco),w(inn)
4,w(iio),w(imo),w(iib),w(ix),w(ior),w(iil),maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4, corner, nn, lord, mord, lbf, x, order, list, maxiv, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       model of surface is constructed'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call addpts(ntrl,nstl,r,sltes,tang,w(llo),w(lll))
       Hit right mouse button to continue,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nst' - # to-ek, 'r' - ix koopdihaty, 'w'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subroutine prepar (ntrl, nst, r, next, sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---> interpolation <---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-int (log(real (maxst))/log(3.0))+1
                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          equivalence (11st (0), lord (1, 2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real x(2, maxst), order (maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        integer next (3, 1), sites (3, 1)
                                                                                                         ö
                                                                                                                                                                                                                                                                                                        Integer w(6-maxlv+9-maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 common /points/ nst0,ntr0
                                                                                                                                                                                                                                                                                                                                                                      integer next(1), sites(1)
                                                                                                           end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x(1, j0) =r(1, j0*nst0)
x(2, j0) =r(2, j0*nst0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ha-alxhaq podgotobka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 integer ibf (maxst*2)
                         close(8)
1f (ind.eq.1) then
call tryl("text3")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameter (max1v=20)
                                                                                                         Integer 11st (C:1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               inn-ico.maxlv.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         real r(3, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                             1mo-1io+maxst+2
                                                                                                                                                                                                                                                                                                                                                                                                                               | 1b-imo+maxst *2
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1x-11b.maxst .2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ior-ix+maxst.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print *,' "
write(8,15) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          do 10 j6-1, nd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ico-lor+maxst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   111-110+maxst
                                                                                                                                                                                                                                                                                                                                 real tang(1)
         write(8, •)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nd=nst-nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                       print ',' close(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ormat (a)
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                                                                                                                                                                   close (3)
close (9)
                                                                                                                                                close (2)
                                                                                                                                                                                                          return
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sites -work arr, dimension = maxst*6
common /points/ nst,ntr
common /lider/ ifo,isu,nmiO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
imadst,rdmaxO,idra,iwin,idrm,msav,ilg,miner,kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a3=volum(r(1, np), r(1, sites(mi, tql)), r(1, sites(m2, tql)))
a1=volum(r(1, np), r(1, sites(m2, tql)), r(1, sites(m3, tql)))
                                                                                                                                                                                                                                                                                                                                                                             a3=volum(r(1, np), r(1, sites(1, tq1)), r(1, sites(2, tq1)))
a1=volum(r(1, np), r(1, sites(2, tq1)), r(1, sites(3, tq1)))
a2=volum(r(1, np), r(1, sites(3, tq1)), r(1, sites(1, tq1)))
lf(a1, qe.0, and, a2, qe.0, and, a3, qe.0) then
                                                                       polck tpeugolxhika b kotopy) popadaet to-ka np
          subroutine searchint (tgl, np, r, next, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ***> triangle not found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subroutine outint (ntrl, nstl, r, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fatal error
                                                                                                                                                                                                                                 Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tg]-next (m, tg])
m2=markint (tg], prev, next)
m3=mod (m2, 3) +]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , ipik, ipog
                                                                                                                                                            common /points/ nst,ntr
                                                                                                                          integer tgl,m,np,prev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bybod dlq bizualizacii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (al. lt.a2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(al.lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(a.lt.0) goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 print ",' """>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1f(x0.gt.ntr) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f (a2.1t.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f (al.lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end If
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     m1 = mod (m3, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2=E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽•E
                                                                                                                                                                                                  real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          stop 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e l se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1010 prevetgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a .. a ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a-a3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        x0-k0+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                          o-xe
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hi=abs((r(1,st2)-r(1,np)) (r(2,st3)-r(2,np))

-(r(2,st2)-r(2,np)) (r(1,st3)-r(1,np))

h2=abs((r(1,st3)-r(1,np)) (r(2,st1)-r(2,np))

-(r(2,st3)-r(2,np)) (r(1,st1)-r(1,np))

h3=abs((r(1,st1)-r(1,np)) (r(2,st2)-r(2,np))

r(1,st1)-r(2,np)) (r(1,st2)-r(2,np))

r(1,st1)-r(1,np)) (r(2,st1)-r(2,np))

r2=(r(1,st2)-r(1,np)) (r(2,st1)-r(2,np))

r3=(r(1,st2)-r(1,np)) (r(2,st2)-r(2,np)) (r(2,np)) 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         h - pioładi tpex obpazobablikeq tpeugolkhikob.
parameter (eps-le-8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              h(1) = (h2**2*r2**2*h3**2*r3**2) * (h1) **2
h(2) = (h3**2*r3**2*h1**2*r1**2) * (h2) **2
h(3) = (h1**2*r1**2*h2**2*r2**2) * (h3) **2
                                                                                                                                               st=sites(nv,nt)
w=funcal(st,np,r,tang)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *ubroutine wghts(h, nt, np, r, sites)
h2 (1) +h2 (2) +h2 (3) -1
                                                                                                                                                                                                                          2=2+M. h2 (nv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Integer stl, st2, st3
common /points/ nst,nt:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else 1f(r2.lt.eps) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (r3.lt.eps) then
                                                                                                             do 30 nv-1,3
                                                                                                                                                                                                                                                            cont Inue
                                                                                                                                                                                                                                                                                              r (3, np) -z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           z-h(1)+h(2)+h(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    integer sites (3,1) teal h(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(rl.lt.eps) then
                                                                                                                                                                                                                                                                                                                                       continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h(1) -h(1)/2
h(2) -h(2)/2
h(3) -h(3)/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stl-sites(1,nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                st2-sites (2, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           st3-sites (3, nt)
                                                                                                                                                                                                                                                                                                                                                                                                           ns=) 1st (nt)
                                                                       0=2
                                                                                                                                                                                                                                                                                                                                                                         end 10
                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h(2)-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h(3)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      h(1)-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         h(1) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     h(3) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               h(2)-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              700
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    h(3) -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
```

real r(3,1)

intim.f

do 2 l-1, nfunc

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real phi (nfunc), rmat (nfunc, nfunc), rhs (nfunc), r2 (3) sum-1.d0/ (dprod (r2(1), r2(1))+
                                                                                                                         if(r(3,1).lt.0.0.and.r(3,1).gt.-9 ) r(3,1).-0
if(r(3,1).gt.zmax ) r(3,1) = zmax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  write (7,*) sites(1,1t), sites(2,1t), sites(3,1t)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      real tang(n(unc,1),ph1(nfunc),r(3,1)
call (uncs(r(1,ms)-r(1,ns),r(2,ms)-r(2,ns),ph1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(r(1, j1), 9e.0.0 .and.r(1, j1).le.1.0) then
if(r(2, j1), 9e.0.0 .and.r(2, j1).le.1.0) then
write(7,*)r(1, j1),r(2, j1),r(3, j1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        dprod (r2(2), r2(2))+dprod(r2(3), r2(3)))
                                                                                                                                                                                                                                                                                                                                                                                     ',nt,' trlangles'
',nstl,' points'
job is done'
                                                                                                                                                                                         read(2)((sites(i3,14),i3=1,3),i4=1,ntrl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rhs (k) -rhs (k) + (sum dprod (r2 (3), ph1 (k)))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 furcal-funcal+dprod (tang (k, ns), phi (k))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(frame(sites(1,1t),r)) goto 710
if(f.ame(sites(2,1t),r)) goto 710
if(frame(sites(3,1t),r)) goto 710
                                                                                                                                                                                                                                                        ({(frame(sites(1,it),r)) goto 712
[f(frame(sites(2,it),r)) goto 712
[f(frame(sites(3,it),r)) goto 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unction funcal (ns, ms, r, tang)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Subroutine calmirmat, rhs, r2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call funcs(r2(1), r2(2), ph1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              wrice(7, •) rl, rl, r (3, 11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              write(7,•)rl,rl,r(3,jl)
                                                                                  write (7,*) ntrl,nstl
do 220 jl=1,nstl
                                                                                                                                                                                                                                                                                                                                                                     write (7, 4) nt, astl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameter (nfunc=5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameter (nfunc=5)
                    integer sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 710 lt-1, ntrl
                                                                                                                                                                                                                                        do 712 1t-1, ntrl
                                                                                                                                                                                                                                                                                                                                                                                                                                                      format (a,17,a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 10 jlel, nstl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 1 k+1, nfunc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 1 k-1, nfunc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            funcaler (3, ns)
                                                                                                                                                                                                                                                                                                                                                                                                                                  write(8,15) '
logical frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           continue
                                                                                                                                                                                                                                                                                                                                                                                                                  write (8, 16)
                                                                                                                                                                                                                                                                                                                                                                                         write (8, 16)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sum-sum..?
                                                                                                                                                                                                                                                                                                                               nt -nt +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ormat (a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end If
                                                                                                                                                                                                                                                                                                                                                   cont Inve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                           cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return
                                                              r1-0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0-60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
                                                                                                                                                                                                                                                                                                                                                                                                                                                      16
15
                                                                                                                                                                                                                                                                                                                                                 712
                                                                                                                                                                           25°
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210
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common /lider/ ifo,isu,nmi0,xmax,xmin,ymax,ymin,zmax,zmin,grid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              madst, rdmax0, 1dra, 1win, 1drm, msav, 11g, miner, kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 integer next(3,1),sites(3,1)
radcir - kbadpat padiuca opicahhoj bokpug tp-ka okpuvhocti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subroutine proint (r, next, sites, radcir, tang, work, minst)
real r(1), next(1), sites(1), radcir(1), tang(1), work(1)
call calrad(r, sites, radcir)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subroutine calnor(r,next,sites,radcir,tang,mask,minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           papametpy okpuvhocti, opicahhoj bokpug modeli
ibnd - padiuc, nbnbp - kol-bo to-ek ha okpuvhocti
parameter(nbndp=11,rbnd=10.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call calnor(r, next, sites, radcir, tang, work, minst)
rmat (k, 1) -rmat (k, 1) + (sum dprod (ph1 (k), ph1 (1)))
                                                                                                                                                                                                              real rmat (nfunc, nfunc), rhs (nfunc)

    common subprograms for interpolation

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        real r2(3), rnor (nfunc, nfunc)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              · mask - work arr. dim · minst
                                                                                                                                                              subroutine cirm(rmat, rhs)
                                                                                                                                                                                                                                                                                                                                                                                                                                            subroutine funcs(x, y, phi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      integer mask(1), crv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real radcir(1)
real tang(nfunc,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               parameter (nfunc=5)
                                                                                                                                                                                         parameter (nfunc=5)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ph! (4) -dprod (x, y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           phi (5) -dprod (y, y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ph1 (3) -dprod (x, x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sh (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 real phi(nfunc)
                                                                                                                                                                                                                                           do 1 k-1, nfunc
                                                                                                                                                                                                                                                                                           do 1 1-1, nfunc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              logical frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integer sh, st
                                                                                                                                                                                                                                                                                                                   rmat (k, 1) -0d0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         real r(3,1)
                                                                                                                                                                                                                                                                   rhs (k) =0d0
                                 continue
                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ph1 (1) -x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ph! (2) -- y
                                                         continue
                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                           return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  return
                                                                                                                                                                                                                                                                                                                                                                                                     end
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2

1010

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subroutine smootl(r,w,next,sites,temp,nmem,rmem,musx,minst,ismt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Integer next(3,1), sites(3,1)
dimension temp(minst), nmem(minst/2), rmem(minst/2)
common /lider/ ifo,isu,nmi0,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmaxo,idra,iwin,idrm,msav,ilg,miner,kva
                                                        gauss) (rnor, nfunc, nfunc, tang (1, st), 1, 1)
                                                                                                                                                                                                                      subroutine smooth (r, wight, next, sites, w, minst, ismt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rbnd - padluc, nbabp - kol-bo to-ek ha okpuvhocti
                                                                                                                                                                                                                                                                                                                        dimension temp(minst), nmem(minst/2), rmem(minst/2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                papametpy okpuvhocti, opicanhoj bokpug modeli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  st-sites(10,nt)
1f(mask(st).eq.0) then
obojti bokpug bep[lhy sites(10,nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f (1smt.eq.2.or.w(st).gt.eps) then
neb-next(sh(10),nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 ,w (lnmem), w (lrmem), w (lmask), mlnst, lsmt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                call smoot! (r, wight, next, sites, w (itemp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (1smt.ne.l.and.1smt.ne.2) return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smoot hing
                                                                                                                                                                                                                                                                                                     Integer next(3,1), sites(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       parameter(nbndp-11,rbnd-10.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 10 ns=1,nst
If (ns.lt.nst-nbndp) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , ipik, ipog
                 end1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common /points/ nst,ntr
                                                                                                                                                                                                                                                                                real r(3,1), wight (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     parameter (eps=le-8)
                                                                                                                                                                                                                                                                                                                                                                                                      frmem-Inmem+minst/2
                                                                                                                                                                                                                                                                                                                                                                                                                             imask-lrmem+minst/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(1smt.eq.2) w(1)=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   temp (ns) *r (3,ns)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mask (st) =1
                                                                                                                                                                                                                                                       integer w (minst .3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              integer sh, st, crv
                                                                                                                                                                                                                                                                                                                                                                                    Inmem-1temp+minst
                                                                         end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     real r(3,1),w(1)
                                                                                              end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sh (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mask (ns) =0
                                                                                                                                                                                                                                                                                                                                              integer mask(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mask (ns) =1
                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              integer mask(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40 nt=1, ntr
do 30 10=1,3
                                                        call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nmem (ns) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                end 1f
                                                                                                                                       cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real bl,b2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print .,'
                                                                                                                                                          return
                                                                                                                                                                                                                                                                                                                                                                 ltemp-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e l se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 op
O
                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U
                                                                                                                                                                                                                                                                                                                                                                                                                       · * * * >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |sti*next(ml,lst)
|[[|sti.gt.0.and.radcir(|stl).lt.rdmax0**2) then
|[[|sti.gt.0] then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call gauss)(rnor, 2, nfunc, tang(1, st), 1, 1)
do 86 kl=1, nfunc
tang(kl, st) =0d0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (,not.frame (sites (m3, 1stl), r)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f(.not.frame(sites(m3,lst),r)) then
                                                                                                                                                                                                                                                                                                                                                                                                                 fatal error
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             by-leigeted hopmalx & tpeugolxhiku
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (radcir(lst).lt.rdmax0**2) then
                                                                                                                                                                                                                                                 obojti bokpug bepilhy sites(10, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r2(1) *r(1, sites(m3, lst), -r(1, st)
r2(2) *r(2, sites(m3, lst)) -r(2, st)
r2(3) *r(3, sites(m3, lst)) -r(3, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      r2(2)=r(2, sites(m3, lstl)) -r(2, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     crv=crv+1
call calm(rnor, tang(l, st), r2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   r2(1) =r(1, sites(m3, 1st1)) -r(1, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              r2(3)=r(3, sites(m3, lstl))-r(3, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call calm(rnor,tang(1,st),r2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call clrm(rnor, tang(1, st))
                                                                                                                                                                                                                                                                                                                                                                                              If (crv.gt.minst/8) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  m3-markint (lstl, lst, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             m3-markint (neb, ist, next)
                                                                                                                                                                                                                                                                                                                                                 call cirm(rnor, tang(1, st))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print ., crv, st, nt
                                                                                                                                                                                                                                                                                                                                                                                                                   V # # #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f (1st.ne.nt) goto 1010
                                                                                                                                                                                                                                1f (mask (st).eq.0) then
print ','nst,ntr', nst,ntr
do 10 ns=1,nst
if(ns.lt.nst-nbndp) then
                                                                                                                                                                                                                                                                                         neb-next (sh (10), nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 neb*next (m2, neb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(crv.le.l) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(.true.)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :((.true.)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if (crv.ic.5) then
                                                                                                                                                                                                                                                                                                                                                                                                               print .,.
                                                                                                                                                                                                                                                                                                                                                                                                                                        stop 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C:V-C:V+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                          end if
                                                                                                                                                                                                              st -sites (10, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    m1-sh (m3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ...2-sh (m))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gi pue
                                                                                                                                                                                                                                                                        mask (st) = 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ist -neb
                                                                                                                                                cont inue
                                                                                                                                                                                                                                                                                                                                                                           continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end 10
                                                               mask (ns) =0
                                                                                                        mask (ns) -1
                                                                                                                                                                                       do 20 10-1, 3
                                                                                                                                                                                                                                                                                                               1 st =nt
                                                                                                                                                                do 30 nt-1, ntr
                                                                                                                             end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 · second neighbor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "let us try this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       · first neighbor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *lot as try this
                                                                                   else
```

O

1010

```
call smstal (istat, r, wight, next, sites, w (itek), w (id ), w (ismot),
                                                                                                                                                                                                                                                                                                                                      by-iciq'teq padiyey opicannyx bokpyg tpeygolxhikob okpyvhocte)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subroutine smstal (istat, r w, next, sites, tek, d, smot, c, nel, mask,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   b(1) = (pp(r(1, st 2)) +pp(r(2, st 2)) -pp(r(1, st 1)) -pp(r(2, st 1)))/2
b(2) = (pp(r(1, st 3)) +pp(r(2, st 3)) -pp(r(1, st 1)) -pp(r(2, st 1)))/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            det=a(1,1) *a(2,2) -a(2,1) *a(1,2)
  center(1) = (a(2,2) *b(1) -a(1,2) *b(2) / det
  center(2) = (a(1,1) *b(2) -a(2,1) *b(1) / det
  radir([tq1) *pp(r(1,st1) -center(1)) *pp(r(2,st1) -center(2))
}0 continue
                                                                                                                               subroutine smstat (istat, r, wight, next, sites, minst, w)
                                         oppedelehle opiehtacii b tp-ke tri po tp-ku tr2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x(1c),x(inc) ),x(imask),minst)
                                                                                                                               ---> "next" is in disaccord
                                                                                    If (next (markint, trl).eq.tr2) return
                                                                                                                                                         fatal error
                                                                                                                                                                                                                                                                                             subroutine calrad(r, sites, radeir)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 real*8 a(2,2),b(2),det,pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a (1, 1) = r (1, st 2) - r (1, st 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a(1,2)-r(2,st2)-r(2,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a(2,1)-r(1, st3)-r(1, st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a (2, 2) = r (2, st 3) - r (2, st 1)
                                                                                                                                                                                                                                                                                                                                                              Integer tgl, stl, st2, st3
                                                                                                                                                                                                                                                                                                                                                                                      common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real r (3, 1), wight (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                   Integer sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              integer w(3.minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lmask + Inel+minst/8
                                                                do 10 markint-1,3
                                                                                                                                                         •
integer next (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ine1-1c+minst/4+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | smot = | d+m| nst / 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       st 1 = s it es (1, t g1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             st2-sites (2, tgi)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pp(x) "dprod(x,x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     st 3 = sites (3, tql)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Id-itek+minst/8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 10 tgl-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                         real radcir(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ic-Ismot+minst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real center (2)
                                                                                                              cont Inne
                                                                                                                                                                                                                                                                                                                                                                                                              real r (3, 1)
                                                                                                                                 print ...
                                                                                                                                                                               stop 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  retura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 itek-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Save
                                                                                                              0
                                                                     `--·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               den*1/ (* (st) * (*(st) * * (nmem (lc))) * rd)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      temp(st) = (r(3, st) + w(st) *bl) / (1+w(st) *b2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        temp(st) + (r(3, st) + x(1) *b1) / (1+x(1) *b2)
                                                                                                                                                                                                                                                                                                  rnen(crv) * (r(1, st) - r(1, nmem (crv))) **? + (r(2, st) - r(2, nmem (crv))) **?
                                                                       (atal error
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          den-1/(w(1) + (w(1) + w(1)) *rd)
                                                                                                                                                                                                                                                                                                                                                                                                                                        r2=(r(1, st)-r(1, nmem(1c)))**2
•(r(2, st)-r(2, nmem(1c)))**2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           do 50 n0-1,nst-nbndp
!!(abs(temp(n0)-r(3,n0)).le.3*w(n0)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rd-sqrt (r2/rcorr) -0.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1: (r2.it.3*rdmax0**2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(r2.gt.rcorr/16) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bl-bl+r(3, nmem(1c)) *den
                                                                                                                                                                  m3-markint (neb, 1st, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rd-2.sqrt (r2/rmed)
                                               If(crv.gt.minst/8) then print ',' ---> '
                                                                                                                                                                                                                                                                            nmem(crv) -sites(m3, 1st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integer (unction markint (trl, tr2, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rcorr-rdmax0..2.0.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f(lsmt.eq.1) then
                                                                                                                                                                                                                                                                                                                                               1 ( ( ist. ne. nt ) goto : 010
                                                                                                                                                                                                                                                      neb-next (m2, neb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if(lsmt.eq.l) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             comp(st) = c(3, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52-52-den
                                                                                                                                                                                                                                                                                                                                                                                                                    do 20 1c-1, crv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end! [
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.02
                                                                                             stop 21
                                                                                                                       JI pua
                                                                                                                                              0 2 4 4 5 5 5 5 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         i pua
                                                                                                                                                                                        ml-sh (m3)
                                                                                                                                                                                                             m2*sh(m))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e l se
                                                                                                                                                                                                                                   1st aneb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e i se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         r (3, no) +t emp (no)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    endi
      1st-nt
crv-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else
                                                                                                                                                                                                                                                                                                                                                                                          0-29
                                                                                                                                                                                                                                                                                                                                                                           0-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          erd ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return
```

minst)

integer tri, tr2

33

3 2 4 3

O

20

v

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), w (1shot),
                                                                                                                                                                                                                                                                                               by-iciq'tcq padiycy opicahhyx bokpyg tpeygolxhikob okpyvhocte;
integer tgi,stl,st2,st3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       b(1) = (pp(r(1, st2)) + pp(r(2, st2)) - pp(r(1, st1)) - pp(r(2, st1)))/2
b(2) = (pp(r(1, st3)) + pp(r(2, st3)) - pp(r(1, st1)) - pp(r(2, st1)))/2
det = a(1,1) + a(2,2) - a(1,1) - a(1,2)
center(1) = (a(2,2) - b(2)) - a(1,2) - b(2))/det
center(2) = (a(1,1) - b(2) - a(2,1) - b(1))/det
radcir(tq1) = pp(r(1, st1) - center(1)) + pp(r(2, st1) - center(2))
                                                                                                                     ,
                                                                                                                                      ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call smstal(istat,r,wight,next,sites,w(itek),w(id
w(ic),w(inel ),w(imask),minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              subroutine smstat (istat, r, wight, next, sites, minst, w)
                                     oppedelehle opiehtacii b tp-ke trl po tp-ku tr2
do 10 markint-1,3
                                                                                                                 "next" is in disaccord
                                                                             If (next (markint, tri) .eq.tr2) return
                                                                                                                                         fatal error
                                                                                                                                                                                                                                                               subroutine calrad(r, sites, radcir)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                        real*8 a(2,2),b(2),det,pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a(1,1) -r(1, st2) -r(1, st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a(1,2)=r(2,st2)-r(2,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a(2,1)=r(1,st3)-r(1,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a(2,2)=r(2,st3)-r(2,st1)
                                                                                                                                                                                                                                                                                                                                          common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real r(3,1), wight (1)
                                                                                                                     ?
                                                                                                                                                                                                                                                                                                                                                                                  Integer sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    integer w(3.minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               lmask*inei+minst/8
                                                                                                                                         î
integer next (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          inei-ic+minst/4+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | smot = 1d+m!nst/8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pp (x) =qbrod (x, x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stl=sites(l,tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      st2-sites (2, tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          st3-sites (3, tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            do 10 tgl-l,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Id-11ek'minst/8
                                                                                                                                                                                                                                                                                                                                                                                                       real radcir(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |c-ismot+minst
                                                                                                                                                                                                                                                                                                                                                                                                                                             real center (2)
                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                               real r(3,1)
                                                                                                                   print .,'
print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10 continue
                                                                                                                                                            stop 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1tek=1
                                                                                                  2
                                                            ,...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(!smt.eq.1) then
den=1/(w(st)+(w(st)+w(nmem(ic))) *rd)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             temp(st) = (r(3, st) + w(st) *bl) / (1+w(st) *b2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   temp(st) = (r(3, st)+w(1)*b1)/(1+w(1)*b2)
                                                                                                                                                                                                                                                               rmem(crv) = (r(1, st) - r(1, nmem(crv))) * * 2 + (r(2, st) - r(2, nmem(crv))) * * 2
                                                              fatal error
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   den=1/(w(1)+(w(1)+w(1))*rd)
                                                                                                                                                                                                                                                                                                                                                                                  r2-(r(1,st)-r(1,nmem(1c)))**2
+(r(2,st)-r(2,nmem(1c)))**2
!((r2.1t.3*rdmax0**2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50 n0-1, nst-nbndp
if(abs(temp(n0)-r(3,n0)).le.3*w(n0)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rd*sqrt (r2/rcorr) -0.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(r2.gt.rcorr/16) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bl=bl+r(3,nmem(1c))*den
b2=b2+den
                                                                                                                                           m3-markint (neb, 1st, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rd-2.sqrt (r2/rmed)
                                           if(crv.gt.minst/8) then
                                                                                                                                                                                                                                              nmem(crv) asites (m3, 1st)
                                                                                                                                                                                                                                                                                                                                                                                                                                               rcorr=rdmax0**2*0.1
                                                                                                                                                                                                                                                                                                      If (1st.ne.nt) goto 1010
                                                                ^:
                                                                                                                                                                                                                           neb-next (m2, neb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(lsmt.eq.l) then
                                                              print ',' stop 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               temp(st) *r(3, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       end 1f
                                                                                                                                                                                                                                                                                                                                                               do 20 ic-1, crv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end! (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rd.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end if
                                                                                                                                                                m1-sh (m3)
                                                                                                                                                                                   m2-sh (m1)
                                                                                                      and if
                                                                                                                        Crv-crv+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cont Ince
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  else
                                                                                                                                                                                                        lst "neb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           r (3, n0) -temp (n0)
       1st-nt
                        crv=0
                                                                                                                                                                                                                                                                                                                           b1-0
b2-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  el se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e:d 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                             1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
```

subroutine smstal (istat, r, w, next, sites, tek, d, smot, c, nei, mask,

integer function markint (tri, tr2, next)

integer trlitr2

intim.f

0

30.

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intim.f
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real function de(t,a,n,h)
                                                                                     del=de(c(1),a,n,h)
de2=de(c(m),a,n,h)
1f(12=11.1e.1) go to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (abs (ta).gt.h) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e. se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (f(a(i)-a(j)) 1,1,11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f (ta.gt.h) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         subroutine sort (a, n)
                                                                                                                                                              des-de (c(1s), a, n, h)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (n.eq.1) return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           real a(n), b, t, ta
                                                                                                                                                                               1f (des) 4,10,5
                                   call sort (c,m)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       de-de+h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          de-de-h
                                                                                                                                             18-(11+12)/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              do 1 [=1, n-1
do 1 j=[+1, n
                                                                                                                                                                                                  center*c(1s)
c (m) -a (1) +h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             de-de+ta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 1 1-1, n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 11
                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ta=t-a(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real a(n)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a(1)-a(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       continue
                                                                                                                                                                                                                                                     del •des
                                                                                                                                                                                                                                                                      90 to 8
                                                                                                                                                                                                                                                                                                           de2-des
                                                                                                                                                                                                                                                                                                                            90 to 8
                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                          12-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (1) e-1
                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polagaem papametp h pabhym tpem by-iclehhym cp.-kbadp, otklohehlqm;
                                                                     c(1) = (a(1) -center) **2
c(n) - habop xbadpatob otxlohehl | lementob a(1) ot medlahy
call sort (c, n)
                                                                                                                                                ecil observe bybopki n >= 4, to otbpacybasem n/4 kpajhix zha-
                                                                                                                                                                                                                                                                                                          if(n.eq.3) then
   ecil obmem bybopxi n = 3, to otbpacybaem odho kpajhte zha-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ecil obmem bybopkil i - 3, to otbpacybaem odho kpajhee zha-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ecil ob"em bybopki i >* 4, to otbpacybaem 1/4 kpajnix zha-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       center argulu ( ro(t,a,....) | relating to deal, bull-the t, ro - fibaciq xx'bepa,by-leigeteg b function ro.
                                                                                                                                                                                                                                                                                                                                                                                                    · ecil ob"em bybopki n * 2, to bepem polucumnu;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ed.! ob"em bybopk! i * 2, to bepem polucummu:
sko=0.;*(d(1)+d(2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      talen pooboditeg minimizaciq fuhkeii xx bepal
                  itak : center - medlaha bybopki a (n)
                                                                                                                                                                                                                                                                                                                                                                                                         sko+0.5*(c(1)-c(2))
crd 1f
                                                                                                                                                                               -ehl) obepxu i ctolxko ve chizu:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -en'; abepxu i etolako ve chizu:
                                                                                                                                                                                                                                                                                                                                             -ente coepxu 1 odho chizu:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -enie chepxu i odno chizu:
                                                                                                                                                                                                                                     do 112 i=n4+1, n=n4-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 212 1=14+1,:-14-1
sko*sko+d(1)
s<o*sko/(i-14-14)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (1.eq.3) then
                                                                                                                                                                                                                                                                       sko-sko/ (n-n4-n4)
                                                                                                                                                                                                                                                                                                                                                                sxo*c (2)
                                                                                                                                             if (n.ge.4) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     skond (2)
                                                                                                                                                                                                                                                                                            else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11(1.ge.4) then
                                                                                                                                                                                                                                                     $$0*$$0+C(1)
                                                                                                                                                                                                                                                                                                                                                                                    e i se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call sort (d, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        c l se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                skowsdir (sko)
                                                    do 1 1:1,n
                                                                                                                                                                                                                   n4-n/4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    n=540*3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SKO-C.
                                                                                                                                                                                                                                                      :13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2:3
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podppogpamma sort delaet coptipoblu maccita ain) po bospactahi'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real A(NP,NP), B(NP,MP)
Integer IPIV(NMAX), INDXR(NMAX), INDXC(NMAX)
DO 11 J=1,N
                                                                                                                                                                                                                                                                                                                                                                                           SUBROUTINE GAUSSJ(A,N,NP, B, M,MP) Implicit real*8 (a-h,o-z)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PARAMETER (NMAX-50)
```

G(T) = 3 (11 - D

do 2 1#1,5

.....

intim. £

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DO 13 J=1,N

IF(IPIV(J).NE.1)THEN

IF(IPIV(J).NE.1)THEN

IF (IPIV(K).EQ.0) THEN

IF (ABS(P(J,K)).GE.BIG)THEN

BIG-ABS(A(:,K))

IROW=J

ICOL=K

ENDIF

FLEE IF (IFIV(K).GT.1) THEN

do 48 kx=1,N

b kx,1)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..(LL, ICOL) "0.
50 18 L"1, N
A(LL, L) "A(LL, L) -A(ICOL, L) *50W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    00 19 L-1, X
8 (LL, L) +8 (LL, L) -8 (ICOL, L) +DUM
CONTINUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                              :NDXR(I) "IROW
INDXC(I) "ICOL
IF (A (ICOL, ICOL).EQ.O.) then
do 88 kk=1,N
b (kk,1)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PIVINV-1./A(ICOL, ICOL)
A(ICOL, ICOL) = 1.
Do 16 [=:],N
A(ICOL, L) = A(ICOL, L) * PIVINV
CONTINUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DO 17 E+1,M
B(ICOL, L) +B(ICOL, L) +PIVINV
CONTIVUE
                                                                                                                                                                                                                                                                                                                         DUM-A (1ROM, L)
A (1ROM, L) -A (1COL, L)
A (1COL, L) -BUM
CONTINUE
DO 15 L-1, M
DUM-B (1ROM, L)
B (1ROW, L) -B (1COL, L)
B (1COL, L) -B UH
                                                                                                                                                                                                                                                                                   IPIV (ICOL) *IPIV (ICOL) +1
IF (IROW.NE.ICOL) THEN
50 14 L=1,N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DO 21 LL-1,N
IF / LL.NE, ICOL) THEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DUM-A (LL, 1001.)
                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      return
                                                                                                                                                                                                                                               CONTINUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end1
                                                                                                                                                                                                                                  SNOIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONTINUE
                        DO 22 1-1, N
IPIV(J)-0
                                                                                                                                                                                                                                                                                                                                                                                                                                       CONTINUE
                                                                                                                                                                                                                                                                       CONTINUE
                                                                                                                                                                                                                                                          SIONE
            CONTINUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     END: F
            ::
                                                                                                                                                                                                       4.9
                                                                                                                                                                                                                                              ?:
                                                                                                                                                                                                                                                                      Ξ.
                                                                                                                                                                                                                                                                                                                                                                   ...
                                                                                                                                                                                                                                                                                                                                                                                                                                      .:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
```

CONTINUE DO 24 L-N,1,-1 IF(INDXR(L),NF,INDXC(L))THFN

CONTINUE 31 CN3

2:

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`...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                parameter (minst-70000, maxst-minst, maxtr-2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   o (15ka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       absr1-sqrt (r! (1) **2+rl (2) **2+rl (3) **2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rnorm - hopmalx k kacatelxhoj plockoctl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       obojti bokpug bepliny sites(10,nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rl (1) = r (1, sites (m2, neb)) - r (1, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rl (2) = r (2, sites (m2, neb)) - r (2, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rl (3) -r (3, sites (m2, neb)) -r (3, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        by-iclqetcq hopmalx k tpeugolxhiku
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fatalxhaq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          by-iclehie pepepob b bep(ihax opopho) pe(etki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common /net/ ntr,next(3,maxtr),sltes(3,maxtr)
real rnor(3),tang(3),sig(3),r1(3),r2(3)
common /repers/ e(3,3,minst),derv(2:3,minst)
                                                           nst1 - hoboe polhoe k-bo to-ek pobepxhoct1
                   nst0 - ctapoe k-bo to-ek pobepwhocti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (crv.gt.minst/4) then
                                                                                                                                                     ok' i write
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rl (1) -rl (1) /absrl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rl (2) -rl (2) /absrl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rl (3) -rl (3) /absrl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      neb-next (sh (10), nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If (mask (st).ec.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if(crv.eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         integer next, sites, sh, crv, st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          m3-mark (neb, 1st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     print ','
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rnor (k0) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    do 20 k0-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cont inve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           stop 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               stasites (10, nt;
                                                                                                                                                                                                                                                                    call outintl(ntrl,nstl)
                                                                                                            call addpts (ntrl, nstl)
                                                                                                                                                                                                call outint (ntrl, nstl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end 1
call prepar(ntr,nstl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Crv=crv+)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               m] =sh (m3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    m2-sh (m))
                                                                                                                                                         ^::
                                                                                                                                                                                                                                            if (ind6.eq.1)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        common mask (minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 St -nt
                                                                                                                                                       print ',' ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
do 100 nt=1,ntr
do 90 10=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine coeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sh (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mask (ns) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              do 10 ns-1, nst
                                                                                                                                                                                                                                                                                                                   close(1)
                                                                                                                                                                                                                                                                                                                                      close (2)
                                                                                                                                                                                                                                                                                                                                                                return
                                                                                                                                                                                                                                                                                              end 1f
                                                                                                                                                                                                                         end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   $ 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1010
                     200
                                                                                                                                                           000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    minst too small, change and recompile <==="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     open(i,file-'stempor',form-'unformatted',status-'unknown')
open(2,file-'saddual',form-'unformatted',status-'unknown')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---> maxtr too small, change and recompile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---> maxst too small, change and recompile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                read (1,end=1010,err=1010) ntr,nst0
read (1,end=1030 err=1030) ((sites(14,15),14=1,3),15=1,ntr)
read (1,end=1030,err=1030) ((next(12,13),12=1,3),13=1,ntr)
print *,' ===>',ntr,' triangles have been read <==='
if(ntr,gt.maxtr) then</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       read (2,end=1010,err=1010) ntrl,nstl
read (2,end=1010,err=1010) ({r(10,11),10=1,4),11=1,nstl}
print "," ===>',nstl,' points have been read <==='
!{nstl.gt.maxst} then
print "," ===> maxst too small, change and recompl
                                                                  parameter(minst=70000,maxst=minst, maxtr=2*maxst)
                                                                                                                                                     'ntr' - # tpeugolxhikob, '/net/' - cpicok gmevhocti diq
qpafa dualxhogo k tpiahquiqcii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , u u z >
                                                                                                                                                                                                                                                                                              open(8,flie = 'text')
write(8,') '50 50'
write(8,') 'Interpolation is not aloud'
write(8,') 'Second input parameter is too small'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---> there are no added points
                                          inteppolqciq i by-iclehie koopdihat hobyx to-ek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               by-iclehie papametpob ihteppolqciohhyx fuhkcij
                                                                                                                                                                                                      common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ...
                                                                                         integer next, sites, tgl
'nst' - 1 to-ek, 'r' - ix koopdihaty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              copilpobka to-ek po tpeugolxhikam
print "," """> sorting <*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ***> error reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---> error reading
                                                                                                                                      common /points/ nst, r(4, maxst)
    subroutine ints(Ind5, ind6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if(nsto.gt.minst) then
print *,' ***> m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           if (nst0.ge.nst1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     open(7, file='triang')
                                                                                                                                                                                                                                                                                                                                                                                                                 call tryl ("text")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       print .,"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     stop 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               stop 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             stop 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              stop 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call coeff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              goto 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1010 print .,"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            goto 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :030 print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nst must 0
                                                                                                                                                                                                                                                                                                                                                                                           close (8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1020 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1040 con' inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stop 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stop 14
                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 000
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```
np=lord(k0+ns)
call searin(nsct,np)
if(nsct.ne.nt) then
print *,'bep(lha',ns+k0,'b' he e tpeugolxhiku',nsct
                                                      paremeter (minst=70000, maxst=minst, maxtr=2*maxst)
'nst' = 1 to-ek, 'r' = 1x koopdihaty, 'w' = pogpefhocti.
common /points/ nst0, r(4, maxst)
common /bink/ lord(maxst),list(0:maxtr), jord(maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          parameter (minst-70000, maxst-minst, maxtr-2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common /blnk/lord(maxst),list(0:maxtr),jord(maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integer next,sites,st,sh
common /points/ nst,r(4,maxst)
common /net/ ntr,next(3,maxtr),sites(3,maxtr)
common /repers/ e(3,3,minst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            print *, ' abend in ''prepar''' stop 21
                                                                                                                                                                                                                                                                                                                                                                                           lord(13) "lord(ns)+nst0
1f(jord(ns).eq.nt) goto 1020
                                                                                                                                                                                                                           call searin(ntg,np+nst0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subroutine addpts (ntrl, nstl)
subroutine prepar (ntr, nst)
                                                                                                                                                                                                                                                                                      call kb07ai(jord,nd,lord)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call affin(nt,a,c)
                                                                                                                                                                                                                                                                                                                                                    do 20 [3=nst,nst0+1,-1
ns=13-nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f (nt.1t.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f (nds.gt.0) then
                                         ha-alxhaq podgotobka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 40 k0-1, nds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   real h2(3),q(3)
real a(4,3),c(6,3)
sh(m)=mod(m,3)+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nds-list (nt) -ns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11st (nt) -13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11st (k0) -nst0
                                                                                                                                                                                                                                                  Jord (np) -ntg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 40 14=1, nst0
lord(14)=14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 30 k0=0, nt-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 50 nt=1, ntr
                                                                                                                                                                                                       do 10 npml, nd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nsct ant
                                                                                                                                                                                                                                                                                                                                                                                                                                     nt-nt-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                 list (nt) =nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cont Inue
                                                                                                                                                                                    nd-nst-nst0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ns-11st (0)
                                                                                                                                                                                                                                                                                                               nt-ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                ntg-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                   1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ဇ္ဗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            do 60 ,4=1,3
e(2, j4,st)*e(3,sh(j4),st)*e(1,sh(j4+1),st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -e(3, sh()4+1),st) *e(1,sh()4),st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          derv(3,st) == tang(3)*lel0
print *,' ===> very large derivatives <=='</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tang(16) -tang(16) +e(16,15,st) *rnor(15)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tang (32) *e(1, sh(32), st) *sig (sh(32+1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -e(1, sh()2+1), st) *sig(sh()2))
                                                                                                                                                                                                                                                (r1(2)*r2(3)-r1(3)*r2(2)-rnor(1))/crv
                                                                                                                                                                                                                                                                                           (r) (3) *r2(1) -r1(1) *r2(3) -rnor(2))/crv
                                                                                                                                                                                                                                                                                                                                 (r1 (1) *r2 (2) -r1 (2) *r2 (1) -rnor (3) ) /crv
                                                                                                                                             absr2=sqrt (r2(1) **2+r2(2) **2+r2(3) **2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dery (2, st) -- tang (2) / tang (1) * r (4, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             derv (3, st) -- tang (3) /tang (1) *r (4, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e(1, 31, st) = r(31, st)
If(abs(e(1, 31, st)).lt.cmin) then
jmin=j1
                                                                                                       r2(2)-r(2, sites(m3, neb))-r(2, st)
                                                                                                                           r2(3)-r(3, sites(m3, neb))-r(3, st)
                                                                                    r2(1)=r(1, sites(m3, neb))-r(1, st)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dery (2, st) -- tang (2) 1el0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cmin-abs (e (1, )1, st))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gl*sqr' (scai(tang,tang))
do 50 j3=1,3
e(3,j3,st)*tang(j3)/gl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (tang (1).gt.le-10) then
                                                                                                                                                                                                                                                                                                                                                                                                 If(1st.ne.nt) goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                     e - pepep b bepline
                                                                                                                                                                    r2(1)=r2(1)/absr2
                                                                                                                                                                                                             r2(3)-r2(3)/absr2
                                                                                                                                                                                        r2(2)-r2(2)/absr2
                                                                                                                                                                                                                                                                        rnor (2) = rnor (2) +
                                                                                                                                                                                                                                                                                                                   rnor (3) - rnor (3) +
                                                                                                                                                                                                                                 rnor (1) - rnor (1) +
                                                                                                                                                                                                                                                                                                                                                                                neb-next (m2, neb)
                   r1 (2) =r2 (2)
r1 (3) =r2 (3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 70 15=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sig()1) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cang (36) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 30 jl-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          do 4C 32-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 80 j6-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1= ("["() 515
                                                                end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                            Jmin-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                cmin-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 70
80
```

return

end 11

10

continue

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parameter(minst-70000, maxst-minst, maxtr-2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c(4,m1)=2*(r(4,st3)=r(4,st1))-dvy2/2-d2*3/2
rhs1=(-dv2(2)*dy1+dv2(3)*dx1)*s1+dy1*t2st1-dx1*t3st1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rhs2-(dv3(2) dy2-dv3(3) dx2) s2-dy2*t2st1+dx2*t3st1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dvx1-(dx1*dv2(2)+dy1*dv2(3))*dz1-dv2(1)*t1*s1**2
dvy2-(dx2*dv3(2)+dy2*dv3(3))*dz2-dv3(1)*t2*s2**2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - ploladi .. 2 tpex obpazobab(lxcq tpeugolxhikob.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dv2(j1)=dv2(j1)+e2(j1, j2)*tang(j2,st2)
dv3(j1)=dv3(j1)+e3(j1, j2)*tang(j2,st3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          c(3,m1) -2 * (r(4, st2) - r(4, st1)) - dvx1/2-d1*3/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           c(5,ml)=(rhs1*det+2*c(3,ml)*sc)/sl**2
c(6,ml)=(rhs2*det+2*c(4,ml)*sc)/s2**2
                                                                                                                                                                                                dx1-dx1+e(2, j0, st1) *r(j0, st2)
dy1-dy1+e(3, j0, st1) *r(j0, st2)
dx1-dx1+e(1, j0, st1) *r(j0, st2)
dx2-dx2+e(2, j0, st1) *r(j0, st3)
dy2-dy2+e(3, j0, st1) *r(j0, st3)
dz2-dz2+e(1, j0, st1) *r(j0, st3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                det approd (dxl, dy2) approd (dx2, dyl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Integer next, sites, stl, st2, st3, sh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d1=dx1 *t2st1+dy1 *t3st1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d2=dx2*t2st1+dy2*t3st1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subroutine wghts (h, nt, np)
                                                                                                                                                                                                                                                                                                                                                              s1-sqrt (dx1-.2+dy1-.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       s2-sqrt (dx2-+2+dy2-+2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       scadyl dy2+dxl dx2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 t2st1-tang (2, st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    parameter (eps=le-6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        t 3 st 1 - t a n g (3, st 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a(2,m1)=-dy1/det
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a (3, ml) =-dx2/det
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a(1, ml)-dy2/det
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a (4, ml) -dx1/det
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 60 32-2,3
                                                                                                                                                                                                                                                                                                                                                                                     t1-asin(s))/sl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             c2-asin(s2)/s2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     n2 = ((x,y]/2)**2
                                                                                                                                                                               do 40 j0-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 70 31-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dv2 (31) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dv3(31)=0
                     continue
                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dx2-dx2-t2
                                                                                                                                                                                                                                                                                                                                                                                                            dx1-dx1.tl
                                                                                                                                                                                                                                                                                                                                                                                                                                  dvl-dvl.tl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dy2-dy2.t2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     c(1,m)-d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        c(2, m)) -d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            continue
                                                                dy1-0
                                                                                       dz1-0
                                                                                                                                  dy 2=0
                                                                                                                                                         dz2=0
                                                                                                              dx2=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     w=r(4,st)+(c(1,nv)+c(3,nv)*x)*x+(c(2,nv)+c(4,nv)*y)*y
                                                                                                                                                                                                                                                                                                t0=asin(sqrt (q(2)**2+q(3)**2))/sqrt (q(2)**2+q(3)**2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common /repers/ e(3,3,minst),tang(2:3,minst)
real a(4,3),c(6,3),dx(2),dy(2),e2(3,3),e3(3,3),dv2(3),dv3(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e2(10,11) *e2(10,11) *e(10,k0,st1) *e(11,k0,st2) e3(10,11) *e3(10,11) *e(11,k0,st3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (c(5,nv)-c(6,nv))/2*(x-y)/sqrt(x**2+y**2))
                         call wghts(h2,nt,np)
Inteppolqciq: bzbe(ehhoe cpedhee ot tpex bep(ih h2(1)+h2(2)+h2(3)=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     parameter (minst=70000, maxst=minst, maxtr=2 maxst)
                                                                                                                                                                                                                                q(ml) =q(ml)+e(ml,m2,st)*r(m2,np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          +x*y* ((c (5, nv) +c (6, nv))/2+
                                                                                                                                                                                                                                                                                                                                                                    x-a(1, nv) *q(2) +a(3, nv) *q(3)
                                                                                                                                                                                                                                                                                                                                                                                           y=a (2, nv) *q(2) +a (4, nv) *q(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                        print "," error: x=',x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          print ",' error: y=',y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        integer next, sites, stl, st2, st3, sh common /points/ nst, r (4, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rad-rad+w*h2 (nv)
                                                                                                                                                                                                                                                                                                                                                                                                                 1(x.1t.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f(y.lt.0) then
                                                                                                                                      st-sites(nv,nt)
do 20 ml-2,3
                                                                                                                                                                                                          do 10 m2-1,3
                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                                                                                                                              q(2) =q(2) =t0
                                                                                                                                                                                                                                                                                                                                                 q(3) -q(3) -c0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subroutine affin(nt,a,c)
                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                     q (m) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                end if
                                                                                                                   do 30 nv=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 10 k0-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      r (4, np) = rad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e2(10,11)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e3 (10, 11) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  st3msites(m3,nt)
do 30 11=2,3
do 20 10=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stl+sites(ml,nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             st2*sites(m2,nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cont lnue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. (E, E) -rod (m, 3) +1
                                                                                                rad=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25=11St (nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 80 ml-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ~2*sh(ml)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  m3-sh (m2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real'8 det
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parameter (minst-70000, maxst-minst, maxtr-2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a3-volum(r(1, np), r(1, stes(m1, rq1)), r(1, stes(m2, rq1)))
a1-volum(r(1, np), r(1, stes(m2, rq1)), r(1, stes(m3, rq1)))
                                                                                                                                                                                                                                                                                                                                                                     a3-volum(r(1, np), r(1, sites(1, tql)), r(1, sites(2, tql)))
a1-volum(r(1, np), r(1, sites(2, tql)), r(1, sites(3, tql)))
a2-volum(r(1, np), r(1, sites(3, tql)), r(1, sites(1, tql)))
if(a1.ge.0.and.a2.ge.0.and.a3.ge.0) then
                                                                                                                                                                                                                   polck tpeugolxhika b kotopyj popadaet to-ka np
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        print ",' ---> tpeugolxhik he hajdeh <---* stop 31
                                                                                                                                                                                                                                                                                                 common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                            Integer next, sites, tgl, m, np, prev
common /points/ nst, r (4, maxst)
                                                                                                                                                                                     subroutine searin(tgl, np)
1f(h(3).lt.h(lm)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         If(al.lt.a2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(al.lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f (k0.gt.maxtr) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   If(a.lt.0) goto 1010 return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgl=next(m,tgl)
m2=mark(tgl,prev)
m3=mod(m2,3)+1
m1=mod(m3,3)+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (f(a2.1t.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f(al.lt.a3) then
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                                                                                         h(im)-0
end if
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                                   h (1m) -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end 1f
               h (3) =0
                                                                        h(3) •1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B=B3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1010 prev-tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E-E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a-al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a . a 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       K0-K0+1
                                                                                                                                return
                                                                                                                                                                                                                                                                                                                                                         O-XE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e)se
                                                      e}se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
0
*
                                                                                                                                                                                     (r(sh(10), stl)-r(sh(10), stl)) * (r(sh(10+1), stl)-r(sh(10+1), stl)) . - (r(sh(10+1), stl)-r(sh(10+1), stl)) .
     common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   h2-area; (rp,r(1,st3),r(1,st1))
h3-area2 rp,r(1,st1),r(1,st2))
r(1)-(h2 r2-r2-h3-r3-r2)
h(2)-(h3-r3-r2-h1-r2)-h2
h(3)-(h1-r1-r2-h3-r2-r2)-h3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hl marea; (rp, r(1, st2), r(1, st3))
                                                                                                                                                                                                                                                                                                                      r1-r1+ (r(m1,np)-r(m1,st1))**2
r2-r2+(r(m1,np)-r(m1,st2))**2
r3-r3+(r(m1,rg)-r(m1,st3))**2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sci *sci +r (il, np) *tgn (il)
sc2*sc2+r (il, scli *tgn (il)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rp(12) *r(17, np. *sc2/sc1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else If(r2.lt.eps) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else if (r3.1t.eps) then
                        real h(3), rp(3), tgn(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(h(1).1t.h(2)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 z=h(1)+h(2)+h(3)
h(1)=h(1)/z
h(2)=h(2)/z
n(3)=h(3)/z
                                                                                                                                                                                                                                                                                                                                                                                                   if (rl.lt.eps) then
                                                                                                                st2*sites(2,nt)
st3*sites(3,nt)
do 10 10*1,3
                                            sh (m) -mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    do 30 11-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 40 12-1,3
                                                                                                stl-sites(1, nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                                                                                                        do 20 ml-1,3
                                                                                                                                                                       tgn (10) -
                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                   cont lave
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               h(2)=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                        h (3) =0
                                                                                                                                                                                                                                                                                                                                                                                                                     h(2) =1
                                                                                                                                                                                                                                                                                                                                                                                                                                        h(2) •0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h(1) =0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h (2) =1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h (3) +0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 (2) 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            h(3) =1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sc1=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  É
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1m=2
                                                                                                                                                                                                                                                 r.1=0
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mk=0 lw(r(1, np), r(1, stes(2, rq1)), r(1, stes(3, rq1)), r(1, stes(3, rq1)), r(1, stes(3, rq1)), r(1, stes(1, rq1)), r(1, rq1), r(1, rq1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dx1'dx1'+e(2, j0,st1) 'r(j0,st2)
dy1-dy1+e(3, j0,st1) 'r(j0,st2)
dz1-dz1+e(1, j0,st1) 'r(j0,st2)
dx2-dx2+e(2, j0,st1) 'r(j0,st3)
dy2-dy2+e(2, j0,st1) 'r(j0,st3)
dz2-dz2+e(1, j0,st1) 'r(j0,st3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ommon /net/ next(3, maxer)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     s1-sqrt (dx1 ** 2+dy1 ** 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               s2=sqrt (dx2**2+dv?*
t2=asin(s2)/~?
                                                                                                                                      cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           t1=asin(s))/sl
                                                                                                                                                                               continue
dx1=0
dy1=0
dz1=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dz2-0
do 40 j0-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dx1-dx1-t1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dyl-dyl.tl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dx2=dx7.
                                                                                                                                                                                                                                                                                                                                                                                                                               dx2=0
dy2=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ي وي
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              recurn
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*x*y*((c(5,nv)+c(6,nv))/2+
(c(5,nv)-c(6,nv))/2*(x-y)/sqrt(x**2*y**2))
rad=rad*w*h2(nv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     t0=asin(sqrt(q(2)**2+q(3)**2))/sqrt(q(2)**2+q(3)**2)
q(2)=q(2)*t0
q(3)=q(3)*t0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e15e
ന
                                                                                                                                                                                                                        inteppolqciq: bzbelehhoe cpedhee ot tpex beplih
h2(1)+h2(2)+h2(3)=l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q (ml) -q (ml) +e (ml, m2, st) *r (m2, np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or ((235, ((401) 48) 2- (235, ((401) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (0) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- (135, (01) 48) 3) • ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2) • ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 48) 2- ((536, (01) 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x=a (1, nv) *q(2) +a (3, nv) *q(3)
y=a (2, nv) *q(2) +a (4, nv) *q(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(x.lt.0) then
print *," error: x=',x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            print *,' error: y"',y end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                       call wghts (h2, nt, np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           st sites (nv, nt)
do 20 ml 2, 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q(m1)-0
do 10 m2-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f(y.1t.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 30 nv-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
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                                                                                                                                            end if
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continue
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     ints.f
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polck tpeugolxhika b kotopyj popadaet to-ka np
parameter(minst=70000,maxst=minst, maxtr=2·maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a3-volum(r(1,np),r(1,sites(h<sup>1</sup>,tgl)),r(1,sites(m2,tgl)))
a1-volum(r(1,np),r(1,sites(m2,tgl)),r(1,sites(m3,tgl)))
if(a1.1t.a3) then
                                                                                                                                                                                                                                                                                                                                                            a3-volum(r(1,np),r(1,sites(1,tgl)),r(1,sites(2,tgl)))
a1-volum(r(1,np),r(1,sites(2,tgl)),r(1,sites(3,tgl)))
a2-volum(r(1,np),r(1,sites(3,tgl)),r(1,sites(1,tgl)))
if(a1,ge.0,and.a2,ge.0,and.a3,ge.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                print "," """> tpeugolxhik he hajdeh <=""
                                                                                                                                                                                                                                                    lnteger next, sites, tgl, m, np, prev
common /points/ nst, r (4, maxst)
common /net/ ntr, next (3, maxtr), sites (3, maxtr)
                                                                                                                                                                                 subroutine searin(tgl,np)
1f(h(3).lt.h(lm)) then
h(3)=0
h(lm)=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(a2.lt.a3) then
if(a1.lt.a2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (al. lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if (kO.gt.maxtr) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f(a.lt.0) goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        m2-mark (tgl, prev)
m3-mod (m2, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgl-next (m, tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end 1f
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                                                                                          n (1a) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                           end 11
                                                                       h(3)-1
                                                                                                           end 1f
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a-a]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1010 prev-tg1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E-13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              x0=x0+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return
                                                                                                                              return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0=0
X
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                                                                                                                                                                                                                                                                                                              SAVe
                                                                                                                                                                                 . (r(sh(10), stl)-r(sh(10), stl)) * (r(sh(10+1), stl)-r(sh(10+1), stl))
. -(r(sh(10+1), stl)-r(sh(10+1), stl)) * (r(sh(10), stl)-r(sh(10), stl))
     common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hl=area2(rp,r(1,st2),r(1,st3))
h2=area2(rp,r(1,st3),r(1,st1))
h3=area2(rp,r(1,st1),r(1,st2))
h(1)=(h2-r2-r2-h2-r3-r2)
h(3)=(h3-r3-r2-r1-r2)-h2
h(3)=(h1-r1-r2-h2-r2-r2)-h3
r2-h(1)-h(2)-h(3)
h(1)-h(1)/r2
h(1)-h(2)-h(3)-h(3)
h(3)=h(3)/r2
                                                                                                                                                                                                                                                                                                                r1=r1+(r(ml,np)-r(ml,st1))**2
r2=r2+(r(ml,np)-r(ml,st2))**2
r3=r3+(r(ml,np)-r(ml,st3))**2
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    scl=scl+r(il, np) *tgn(il)
sc2=sc2+r(il, stl) *tgn(il)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rp(12) =r(12, np) *sc2/scl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        else if (r3.it.eps) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 else if(r2,it.eps) then
                      real h(3), rp(3), tqn(3)
sh(m)=mod(m,3)+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(h(1).lt.h(2)) then
hlm=h2
                                                                                                                                                                                                                                                                                                                                                                                          if(rl.lt.eps) then
                                                                                              stl=sites(1,nt)
st2=sites(2,nt)
st3=sites(3,nt)
do 10 10=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sc2=0
do 30 il=1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           do 40 12-1,3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           continue
                                                                                                                                                                                                                                                                                                  do 20 ml-1,3
                                                                                                                                                                     : gn (10) =
                                                                                                                                                                                                                          cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    h(2)-0
end 11
                                                                                                                                                                                                                                                                                                                                                                                                           1-(0)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o= (2) ự
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 (1) ÷0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              h(3) -1
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                                                             save
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do 10 $2*1, nst1
                                                                                                                                                                                                                                            close (7)
                                                                                                                                                                                                                                                                   return
                                                 0
                                                                                                          2
                                                                                                                                                                                                                         ::
                                                                                                                                                      area2-area2+((x(m)-z(m))*(y(n)-z(n))-(x(n)-z(n))*(y(m)-z(m)))**2
                                                                                                                                                                                                                                                                                                                                                  parameter (minst=70000, maxst=minst, maxtr=2*maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           parameter (minst-70000, maxst-minst, maxtr-2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            write (7,*) ntrl,nstl
do 10 j2=1,nstl
write (7,*) ((r(i1,iord(j2))*r(4,iord(j2))),i1=1,3)
                                                                                                                                                                                                                                                                                                                                                                                                                             common /bink/lord(maxst),llst(0:maxtr),jord(maxst)
common /net/ ntr,next(3,maxtr),sites(3,maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    common /repers/ mord(maxst)
common /blnk/lord(maxst),llst(0:maxtr),jord(maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              common /net/ ntr, next (3, maxtr), sites (3, maxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              read (2) ((sites(11, 52), 11-1, 3), 52-1, ntrl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 read (2) ((sites(ii, j2), i1+1, 3), j2+1, ntrl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    do 11 j2=1,ntrl
write (7,*) (mord(sites(il, j2)),il=1,3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f(r(4, sites(i, it)).gt. 1.5) goto 712
1f(r(4, sites(2, it)).gt. 1.5) goto 712
1f(r(4, sites(3, it)).gt. 1.5) goto 712
                               plo)adx tpeugolxhlka b kbadbate
area2 = {x,y}**2/4
                                                                                                                                                                                                                                                                                                                                                                                          common /points/ nst,r(4,maxst)
common /repers/ mord(maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common /points/ nst,r(4,maxst)
                                                                                                                                                                                                                                                                                             subroutine outint (ntrl, nstl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subroutine outintl (ntrl, nstl)
real function area2(x,y,z)
                                                                                                                                                                                                                                                                                                                              bybod dlq bizualizacii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bybod diq bizualizacii
                                                                         real x(3), y(3), z(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mord(lord(12))-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 712 1t = 1,ntr1
                                                                                                                                     n-mod (m, 3) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 20 12-1, nstl
                                                                                                                                                                                              area2=area2/4
                                                                                                                                                                                                                                                                                                                                                                        integer sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 integer sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            continue
                                                                                                                 do 10 m-1,3
                                                                                                                                                                            cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                               area2=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       At - At+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             close (7)
                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0 1 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    save
                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7:2
                     . . .
                                                                                                                                                                                                                                                                                                               . .
```

write (7, *) nt, nstl

KB000760 KB000770 KB000780 KB000790 KB000800 kb000810 XD000840 XD000850 XD000860 XD000860 XD000880 XD000880 kb001170 kb001180 kb001210 kb001220 0990009 k b000670 kb000140 kb001060 kb00107) K5001120 K5001130 k b000680 06900093 00000000 k b000720 cb000730 K 5000750 1050 c P000830 cb001010 kb001020 cb001030 cb001040 KP001080 cb001090 10001100 kb001110 kb001140 cb001150 kb001160 x 5001190 10001200 46000990 5001000 K 5003 c return the test number to the position marked by the marker c which did not move last. It divides the initial segment into c 2 parts, any element in the first part is less than or equal c to any element in the second part, and they may now be sorted c independently. c if it contains more than one element supply it with workspace obtain the address of the shortest segment awaiting quicksort we alternate between the outer loop that increases I and the inner loop that recutes lfk, moving numbers and indices as necessary, until they meet . find the length of the shorter subdivision. store the longer subdivision in workspace. if(count(ifk).gt.x)goto 100 if(count(ifk).lt.x)goto 90 if(intest.le.intex(ifk))goto 100 90 if(i.ge.ifk)goto 130 count(i)=count(ifk) 1f(x,gt.count(!))goto 110 1f(x.lt.count(!))goto 80 1f(intest.gt.index(!))goto 110 80 1f(i.ge.ifk)goto 120 140 If ((Ip-is).gt. (if-ip))goto 150 1f (Ingth.le.0) goto 180 170 if (la.le.0) goto 200 Index (1fk) - index (1) Index(I)-Index(Ifk) count (1fk) -count (1) index (ifk) - intest do 100 k-kl, ifka index (1) -intest mark(la-1)-1p+1 do 110 1-15,1f 120 count (1fk) -x mark(la)=1p-1 mark(la-1)-1s 1 s=mark (1a-1) 160 lngth-If-is mark (la) -1f 180 1f-mark (la) 130 count (1) -x go to 110 1 CK-1 C-K 110 continue goto 140 got 0 160 goto 190 continue 100 continue goto 120 S-1p+1 1a-1a+2 1 f=10return ip-1fk 1 150 o 0 0 0 U U xb000160 xb000170 xb000180 x 5000020 x 50000030 xb000060 xb0000070 xb000140 xb000150 xb000250 xb000260 xb000270 Kb000420 Kb000430 x b0000460 x b0000470 xb000510 xb000520 KB000540 KB000550 x5000560 x5000570 x2000630 x2000640 K D000010 KD000040 k b000050 x 5000080 060000qx k b000110 kb000120 k b000130 be sorted .* return tokb000190 K D000200 x 5000210 x 2000220 kb000230 k b000240 kb000310 KP000410 x b000100 K D000280 k b0000290 K P0003300 k b000320 k b000330 x 5000340 cb000d3 cb000360 kb000370 K D 0 0 0 3 8 0 cp000330 cb000400 c D000440 < D000450 k b000480 cb000490 KP000200 KP000530 x 5000580 KD000590 x 2000600 KP000610 K D 0 0 0 6 2 0 c standard fortran 66 (a verified pfort subroutine) c the work-space 'mark' of length 50 permits up to 2**(50/2) numbers the test number replace it with the number from the segment's index(iy)=index(if) the markers '1' and 'ifk' are used for the beginning and end of the section not so far tested against the present value of x. to be sorted, this is more than the ibm virtual memory space 'm' is the length of segment which is short enough to enter the final sorting routine. It may be easily changed. select the number in the central position in the segment as if segment is short enough sort with final sorting routine ifka-if-is handles real single-length variables 20 (ormat (///20x, 65h ***kbC7a*** no numbers to check that a trivial case has not been entered quicksort dimension count (n), rark (50), index (n) If (count (1-1), 1C. count (1)) goto 60 If (count (1-1), .gc. count (1)) goto 50 If (index(1-1), .lc. index(1)) goto 60 av=count (1-2) set index array to original order . do 10 i=1,n subroutine kb07a (count, n, index) 40 1f (count (1-1).lt.count (1))goto 21/04/80 if((ifka+1).gt.m)goto 70 final sorting *** (a simple bubble sort) 6 Index (1-1) = Index (1) count (1-1) -count (1) 1f(n.eq.1)goto 200 2 calling program) set up initial values. 1f (n.ge.1)go to 30 do 190 mloop=1, n intest-index(ly) 1f(1.gt.1s)goto do 60 3-1s1,1f Int-Index (1-1) **x**507a highest address. av-count (1-1) Index (1) - Int count (1) -av x=count (1y) write (6, 20) Index (1) - [x 507a 10 continue will hold . 151-15+1 continue goto 200 goto 170 cname kb07a(r) 1a-1a-2 30 m-12 x .x 9 9

```
1 - smooth according to errors (from the file)'
2 - smooth (all errors = 1) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       write(4,*) ' draw the triangulation during the execution? (y/n/q)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 - kill according to errors (from the file)'2 - kill by statistical method'
                                                                                                                                                                                                                                                                              write(4..) ^{\circ} is the input (ile formatted or unformatted ^{\circ}(f/u)^{\circ}
                                          common /lider/ Ifo,Isu,nmlO,xmax,xmln,ymax,ymln,zmax,zmln,grld,
madst,rdmaxC,idra,lwin,idrm,msav,ilq,mlner,kva
                                                                                                                                                                                                                               (,,,,,,,
                                                                                                                                                                               .... information about the execution ....
                                                                                                                                                           .... the program ', a8, ' has run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6' is this surface or function with several values ?(s/f)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(isu.eq.0) goto 30 write(4,^{\circ}) 'the maximal number of points in the model'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write (4, *) ' what smoothing do you prefer ? (n/1/2/q)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - request during the execution?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - request during the execution?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(lsu.eq.0) write(4,1) 'f'
if(lsu.ne.0) write(4,1) 's'
if(lsu.ne.0) goto 20
write(4,*) ' how many values has the function ?
                                                                                                                                                                                                                                                                                                                                                                             f does the input file contain errors ?(y/n)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             write(4,*) ' the size of grid for averaging
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   write(4,*) xmin,xmax
write(4,*) % minimal and maximal values of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            write (4, *) ' minimal and maximal values of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               write (4, .) ' minimal and maximal values of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if(lsu.ne.0) goto 77
write(4,*) ** will you work with windows ?*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      write(4,*) madst
write(4,*) 'the radius of confidence'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     n - no smoothing
l - smooth accord
                                                                                                                                                                                                                                                                                                                                                                                                 1f(lpog.ne.0) write(4,1) 'y'
if(lpog.eq.0) write(4,1) 'n'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if(kva .eq.0) write(4,1) 'n'
if(kva .eq.1) write(4,1) 'l'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(lpik.lt.0) write(4,1) 'q'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(!win.eq.0) write(4,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              If(ipik.eq.0) write(4,1)
                                                                                             , 1p1k, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if(lplk.eq.2) write(4,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        if(idra.gt.0) write(4,1)
if(idra.lt.0) write(4,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (f(lplk.eq.1) write(4,1)
subroutine plider(name)
                                                                                                                                                                                                                                                                                                      1f(1fo.ne.0) write(4,1)
                                                                                                                                                                                                                                                                                                                               1f(1fo.eq.0) write(4,1)
                                                                                                                                       open (4, file~'leader')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write(4,*) ymin,ymax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         write(4,*) zmin, zmax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       write(4,*) rdmax0
                      character*8 name
                                                                                                                                                                                                              write(4,2) name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      write (4, *) grid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write(4, *) nmi0
                                                                                                                                                                               write(4,*) '
                                                                                                                                                                                                                                    format(lx, '
write(4,*) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     write(4,*) %
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               write (4, *) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          write (4, *) ^
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               wrlte(4,*) '
                                                                                                                                                               write(4, *) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write(4,*) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          write(4,*) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                write (4, *) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      write (4, *) '
                                                                                                                                                                                                                                                                                                                                                                                                                                                    write (4, .)
                                                                                                                                                                                                                                                                                                                                                       write (4, .)
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common /lider/ ifo, isu, nmiO, xmax, xmin, ymax, ymin, zmax, zmin, grid, madst, rdmaxO, idra, lwin, idrm, msav, ilg, miner, kva , ipik, ipog write(4,.) 'draw the maps during the execution ? (y/r/q)', if(idrm.eq.0) write(4,1) 'n', if(idrm.gt.0) write(4,1) 'y', if(idrm.gt.0) write(4,1) 'q', write(4,1) 'n what form store the maps ?', write(4,1) 's - standart', write(4,.) ilg write(4,.) ' the number of mineral under investigation' write(4,.) ' (if 0 - requst during the execution)' write(4,.) * take the logarithm of input data ?*
write(4,.) * 0 - don"t take logarithm*
write(4,.) * 1 - take logarithm (once)*
write(4,.) * 2 - take logarithm (twice) etc.* a - both (standart and bytes)
n - don"t store' if (msav.eq.1) write (4,1) 's' 1f (msav.eq.0) write (4,1) 'n' b - bytes 1f (msav.eq.3) write (4,1) If (!win.ne.0) write (4,1) 1f (msav.eq.2) write (4,1) 1f(lpog.lt.0) goto 227 if(r.eq.'f') ifo=1
if(r.eq.'u') ifo=0
if(ifo.lt.0) goto 227 open(4,file='leader') 1f(1su.eq.1) goto 20 1f(r.eq.'n') ipog-0 if(r.eq.'y') | 1pog-1 read(4, *) xmin, xmax 1f(r.aq.'s') isu*)
1f(r.eq.'f') isu*0 write(4,*) miner subroutine glider read(4, *) nm10 write(4,*) write(4,*) ' character*1 r write(4,*) ' read(4,1) r close (4, *) format (al) read(4,1) read(4,1) read(4,*) read(4,*) read(4, *) read (4, *) read(4, *) read (4, *) read(4, *) read(4,*) read(4, *) continue [--bod] return [--0] 20 7

read(4,*) ymin,ymax

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lib.f

lib.f

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print ',' errors in (ile <leader>' print ',' fix errors and restart from the beginning'
                                                                                                                                                                                                                                                                                                                                                                      frame=r(1,k).lt.-accy5.or.r(1,k).gt.(1+accy5)
if(frame) return
frame=r(2,k).lt.-accy5.or.r(2,k).gt.(1+accy5)
                                                                                                                                                        print ',' center> - no'
print ',' · center> - yes'
read (5,103,end=1010,err=1010) repl (4)
103 format (al)
If(repl (4).eq.'') suk=0
                                                                                                                                                                                                                                                                                                 logical function frame ( k, r ,
                                                                                      subroutine getans (ans)
integer*4 ans, suk
character*1 rep] (4)
equivalence (suk, repi (1);)
                                                                                                                                                                                                                                                                                                                                                                                                           if(frame) return
frame=r(3,k).it.accy6
                                                                                                                                                                                                                                                                                                                                                                                                                                              end function frame
                                                                                                                                               print *
                                                                                                                                                                                                                                                                                                                                      begin frame
accy5= 1d-2
accy6= -1d-2
                                                                                                                                                                                                                                                                                                                real r(3,1)
     format(al)
return
                                                     stop
                                                                                                                                                                                                                   goto 1020
rewind(5)
                                                                                                                                                                                                                                           continue
                                                                                                                                                                                                                                                     ans-suk
return
end
                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                 end
                            227
                                                                                                                                                                                                                              1010
                                                                                                                                                                                                                                                                                                                                      * * *
                                                                                                                                                                                                                                                         read(4,*)
read(4,*)
read(4,*)
If(x-eq.'n') ipix=0
If(x-eq.'2') ipix=1
If(x-eq.'2') ipix=2
read(4,*)
read(4,*)
read(4,*)
If(x-eq.'y') idx=1
If(x-eq.'y') idx=0
If(x-eq.'n') idx=0
read(4,*)
read(4,*) zmin,zmax
read(4,*)
read(4,*)
                                              1f(isu.eq.0) goto 30
read(4,*)
                                                                                                                                                                                                                                                                                                                                                                                                                                     kva=0
kva=1
kva=2
                                                                                read(4,*)
read(4,*)
read(4,*)
                                                                      read(4, *) madst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          read(4,*) miner
continue
close(4,*)
                                                                                                                                                                                    read(4,1) r
kva =-1
                                                                                                                                                                                                                                                                                                                                                                                                                            read(4,1) r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         read(4, *) 119
                                                                                                                  read (4, *)
                                                                                                                                         read (4, *)
                                                                                                                               read (4, *)
                                                                                                                                                     read(4, *)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       read(4,*)
read(4,*)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            read (4, *)
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ma100680
                                                                            ma100690
                                                                                           ma100700
                                                                                                          ma100710
                                                                                                                          ma100720
                                                                                                                                        ma100730
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                                                                                                                                                                       ma100750
                                                                                                                                                                                      ma100760
                                                                                                                                                                                                    ma100770
                                                                                                                                                                                                                     ma100780
                                                                                                                                                                                                                                     ma100790
                                                                                                                                                                                                                                                  ma100800
                                                                                                                                                                                                                                                                   mal00810
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mal00910
mal00920
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ma101010
                                                                                                                                                                                                                                                                                                  ma100830
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mal01090
mal01100
mal01110
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mal01150
mal01160
mal01170
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mal01200
mal01210
mal01220
                                                                                                                                                                                                                                                                                                                               ma100850
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mal01270
mal01280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ma100940
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ma101250
                                                                                                                                                                                                                                  main entry; set switches for printing and evaluating residuals.
                                                                        on return: holds variance-covariance matrix; size: n*n, on entry: first dimension of v. on return: estimate of residual variance. on return: solution standard deviations; size: n.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          initialize column interchange indicator and scale factors
                                                                                                                                                                                                                                                                 - true )
           entry to obtain variance-covariance matrix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Initialize and compute column scale factors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               format('0', a8,' constraint equations = ', 13/
9x,' least squares equations = ', 13/
9x,' number of parameters = ', 13)

    O bypass first transformation step.

                                                                                                                                                                                                                                                                if ipr even residuals required ( res
                                                                                                                                                                                                                                                                                                res.true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   w(n+j)=amax1(w(n+j), abs(a(1,j))/amx)
                                                                                                                                                                                                                                                                                                            identify special case of m = n
                                                                                                                                                                                                                                                                                                                                                                            Ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         calculate column scaling factors,
                                          entry mal4c(v,1v,var,std,ipr)
                                                                                                                                                                                                                                                                                                                                                                            jo
                                                                                                                                                                                                                                                                                             1f (mod(1abs(1pr), 2).eq.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amx-amax1 (abs (a (1, 1)), amx)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  write(6,60) name,ml,mm,n
                                                                                                                                                                                                                                                                                                                                                                          identify special case
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 w(n+j)=1./(w(n+j)*w(n+j))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f(amx.eq.0.) go to 110
                                                                                                                                                                                                                                                                                                                                                                                                                                       if (ml.lt.0) go to 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(lpr.ge.0) go to 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     print headings etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f ml = 0 bypass first
1f(ml.eq.0) go to 290
                                                                                                                                                                                                                                                                                                                                                                                                        1f(n-m1) 730,40,50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70 1f(rths) go to 320
                                                                                                                                                                                                                                                                                                                                          1f (m-n) 730, 20, 30
                                                                                                                                     as above.
                                                                                                                                                                    vflag-.true.
go to 540
                                                                                                                                                                                                                                                                                                                                                                                      30 negml . false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vflag-.false.
                                                                                                                                                                                                                                                                                                                                                                                                                        neqml .. true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 110 1-1, m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 100 j=1,n
                                                                                                                                                                                                                                                                                res .. false.
                                                                                                                                                                                                                                                                                                                                                          20 megn-.true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 90 j*1,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 90 j=1,n
                                                                                                                                                                                                                                                                                                                              meqn=.fal
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   continue
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1×(1)-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 120
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                                                                                                                                                                                                                                                                                                   on entry: no. of equations (including constraints).
on entry: no. of unknowns.
on entry: no. of constraints.
on entry: nolds the matrix of the equations; on return: holds
the triangularized mutrix and transformations; size: m*n.
on entry: first dimension of a.
on entry: holds right hand side; on return: transformed right
hand side (or optionally the residuals); size: m.
                                                                                                                          the variance-covariance matrix and an estimate of the residual variance is provided by the centry.
                                                linear least squares problem optionally with linear equality constraints, the problem is presented as m linear equations in n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mal4b an entry for supplying a new right hand side to a system
                                                                               unknowns, the first ml equations defining the constraints, additional right hand sides may be passed through a b entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of equations solved previously, the variables m,n,ml,a,ia,lw
                                   - a routine to calculate the solution of the general
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           reference: bjorck and golub, tech. report cs83, stanford univ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                on return; as above.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               on return: transformation information; size: 2*n on entry: specifies output and residuals options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lpr even: residuals; ipr odd: no residuals.
lpr > 0: no printing; ipr < 0: printing done.</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      private variables
logical iswtch,debug,neqmi,res,meqn,rths,vflag
data nmel/' mal4a: '/,nme2/' mal4b: '/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           december 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                on return: column interchanges; size: n.
                                                                                                               which will take advantage of previous work.
                                                                                                                                                                                                            subroutine malda (m,n,ml,a,la,b,x,lw,w,lpr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and w are assumed to have been unchanged.
                                                                                                                                                                                                                           double precision name, nmel, nme2, fm02as dimension a (ia, 1), b (i), x (i), x (i) dimension v (iv, i), std (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                 on return: the solution; size: n.
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on return: new solution; size:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             restrictions: m.ge.n; O.le.ml.le.n.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    malda the initial entry point
    25/05/79
                                                                                                                                                                             are additional options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entry mal4b (b, x, lpr)
                                                                                                                                                                                                                                                                         dimension [v(1)
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go to 10
                                   mal4a/b/c
    ma14a
                   mal4a(r)
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                                                                                                                                                              begin elimination of first m variables in equations of condition
                                                                                                                                                                                                                                                                                                                                                                                                                   begin transformation step q2 on equations of condition.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        apply transformation qi to first mi right hard sides.
                                                                                                                                                                                                                                                                                                                                                                         280 a(1, 1) "a(1, 1) - fm02as(ml,a(1,1),1a,a(1,1),1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               w(n+j)==1, /(w(j)+a(j,j))
If(res.and.negml.and.not.megn) go to 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       back transform for residuals in progress.
                                                                                                                                                                                                                                                                                  wx=a(1, 3) - (mO2as (3-1, a(1, 1), 1a, a(1, 3), 1) a(1, 3) = wx/a(3, 3)
                                                                                                                    a(k, 1) = (1. -beta**(k)**(k))*a(k, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                             form multipliers for elimination.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        start processing eight hand side.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Deta(t) stored in win-i) i=1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n=fm02as(mx-k, 2 (kl, k), l, D (kl), i)
                                                                                        finish off transformation.
do 230 j-kl,n
                                a (1, 1) -a (1, 1) -a (1, x) .n
    h-beta* (h+w (k) *a (k, j))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              n=w (n+k) * (h+w (k) * b (k) ;
                                                                                                                                                                                                                                                                                                                              carry out elimination.
                                                                          220 1f (nx.eq.n) go to 300
                                                                                                                                                                                                                                     1f(ml.eq.1) go to 270
do 260 3~2,ml
do 260 1~mll,m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               if (k-nx) 330, 370, 420
if (k.lt.mx) go to 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(k.gt.ml) go to 330
                                               210 a (k, 1) -a (k, 1) -w (k) ·h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f(1swtch) go to 350
                                                                                                                                                                                                                         a(1,1) =a(1,1)/a(1,1)
                                                                                                                                                                                                                                                                                                 260 a(1, 3) wx/a(3, 3)
270 lf(neqml) go to 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 f (m1-1) 410, 380, 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d. (1, k) -- (1) d. (1) d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4. (x) -- (x) q- (x) q
                do 200 1=k1,mx
                                                                                                                                                                                                                                                                                                                                             do 280 j-mll, n
                                                                                                                                                                                                            do 250 1-m11,m
                                                                                                                                                                                                                                                                                                                                                           do 280 l-mll,m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            do 340 1-kl,mx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 310 )-1, n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              320 1swtchm.true.
                                                             go to 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   go to 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90 to 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mxl-mx.
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                                                                                                                         calculate initial partial column norms and select largest
                                                                                                                                     solution array used as tempory storage space for norms.
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                                   Dugin transformation step ql on constraint equations.
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                                                                                                                                                                                 x(;) = [m02as (mx1-k,a (k, j), l,a (k, j),l)
ces(- abs (x (j)) ** (n* j)
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tost- abs(x(j)) *w(n+);
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                                                                                                                                                                 begin elimination of first mi variables in equations of condition
                                                                                                                                                                                                                                                                                                                                                                                                                              begin transformation step q2 on equations of condition.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        apply transformation ql to first ml right hand sides.
                                                                                                                                                                                                                                                                                                                                                                                 280 a(i, j) -a(1, j) -fm02as(ml, a(1,1), la, a(1, j), l)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310 \times {n+j} =-1. / (\times {j})*a(j, j)}

1f(res.and.neqm].and..not.meqn) go to 240
                                                                                                                                                                                                                                                                                 wx=a(1, 1) - fmodas(j-1, a(i, 1), ia, a(1, j' 1)
260 a(i, j) = wx/a(j, j)
270 if(neqml) go to 320
carry out elimination.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                back transform for residuals in progress.
                                                                                                                         230 a (k, j) = (l. -beta*w(k)*w(k))*a (k, j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    beta(k) stored in w(n+i) i=1 to n
                                                                                                                                                                                                  form multipliers for elimination.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    start processing right hand side.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      h=fm02as(mx-k,a(k1,k),l,b(k1),l)
                                                                                           finish off transformation.
h-beta*(h+w(k)*a(k, j))
do 200 1=kl,mx
200 a(l, j)*a(l, j)*a(l, k)*n
210 a(k, j)*a(k, j)*w(k)*h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N=M (U+K) . (H+M (K) . D (K) )
                                                                                                                                                                                                                              250 a(1,1) =a(1,1)/a(1,1)
1f(ml.eq.1) go to 270
                                                                             220 If (nx.eq.n) go to 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f (k. lt.mx) go to 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ! ( { k, gt.ml } go to 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(1swtch) go to 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360 If (k-nx) 330, 370, 420 370 if (k. lt.mx) go to 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 f (m1-1) 410, 380, 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 b(1) =b(1) -a(1, k) *h
b(x) -b(x) -w(x) *h
                                                                                                                                                                                                                                                             do 260 j=2,ml
do 260 1=mll,m
                                                                                                                                                                                                                 240 do 250 1-m11,m
                                                                                                                                                                                                                                                                                                                                                  do 280 j=mll,n
do 280 i=mll,m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    do 340 1-k1, mx
                                                                                                        do 230 3-kl,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300 do 310 j-1, n
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                                                             go to 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        go to 130
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                                                                                                                            calculate initial partial column norms and select largest.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if this is the last transformation of this step branch if (k.eq.nx) go to 220 apply transformation. h = scalar product (u,a(j)) do 210 j=x1,n
                                                                                                                                          solution array used as tempory storage space for norms
                                   begin transformation step ql on constraint equations.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :90 x(x) = (m02as(mx1 - x, a(x, x), 1, a(x, x), 1)
sigma=sgrt(x(x))*sign(1., a(x, x))
u(x) storec in w(x) and u(1) in a(1, x)
                                                                                                                                                                                     x(j) =fm02as(mx1-k,a(k,j),l,a(k,j),l)
test= abs(x(j))*w(n+j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            n=fm02as (mx-k,a (kl,k),l,a (kl, j),l)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   interchange column scale factors.
                                                                                                                                                                                                                                                                                                                                                         x(j)=x(j)-a(k-1,j)*a(k-1,j)
test= abs(x(j))*w(n+j)
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                                                                                                                                                                                                                                                                                                                                                                                       If (test.le.amx) go to 160
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plvot element.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              o(1, 3x) =a(1, k)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 w (u+ )x) -w (u+k)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a (k, k) =-s 1gma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 180 1-1,m
                                                                                                                                                                         do 140 j=k,n
                                                                                                                                                                                                                                                                                                                                            do 160 J=k,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ( X) = ( X ( X ) A (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ( )x = (x) \times (x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (X(+U) X=XA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         xx=1x()x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180 a (1, K) -wx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 × ( × ) = [ × ×
                                                                                                                                                                                                                                                                              go to 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 * (D+K) +*X
                                                                                                EX ] - EX+ ]
                                                                                                                                                                                                                                                     amx-test
                                                                                                                                                                                                                                                                   continue
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                                                                                                                                                                                                                                                                                                                                                                                                                                      continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XX=0(1,)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXEX (XX)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             XX- (X) X
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                                                                                                                                                                                                                                                               now (orm (r**-1) (k)trans(r**-1), where (k) is the identity matrix with first ml diagonals zero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   650 format ('O mal4c: residual variance estimate', el4.6'
'O mal4c: solution standard deviations')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    670 format ('O mal4c: variance-covariance matrix')
                                                                                              let r be upper triangle of a then invert
                                                                                                                                                                                                                                                                                                                               v(1, j)-fm02as(n-k+1,v(1,k),1v,v(j,k),1v)
                  compute estimate of residual variance
                                                                                                                                                                                                                    wkl=-fm02as(1-j,a(j,j+l),la,v(j+l,l),l)
v(j,l)=wkl/a(j,j)
                            1f(.not.res) go to 470
550 sumsq=fm02as(m,b(!),1,b(!).1)
var=sumsq/max0(1,m-n)
1f(neqml) go to 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              write(6,660) (std(j), j=1,n) format(8x,e14.6)
                                                                                                                                                                                                                                                                                                                                                                                   re-order rows and columns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              680 write(6,690) (v(1,j),j=1,n)
690 format(2x,9el4.6)
                                                                                                                                                                                                                                                                                                                                                                                                            If(1.eq.1w(1)) 90 to 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             restore interchanges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c
                                                                                                                                                                        if(i.eq.1) go to 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            640 If (lpr.gt.0) return
write (6,650) var
                                                                                                                     save interchanges
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       std(1) -sqrt (v(1,1))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 special case m -
                                                                                                                                    Std (11) -1w (11) +.5
                                                                                                                                                                                                                                                                                                                                            v(1, j) -v(1, j) *var
                                                                                                                                                            v(1,1)-1./a(1,1)
                                                                                                                                                                                                 do 560 jj-1,11
                                                                                                                                                                                                                                                                                                                   k-max0(j, m1+1)
                                                                                                          do 560 11-1,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                             v(3,1)=v(3,k)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 680 1-1, n
                                                                                                                                                                                                                                                                                         do 580 1-1, n
                                                                                                                                                                                                                                                                                                                                                           580 v(j,1)-v(1, j)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  v(1, j) =v(k, j)
                                                                                                                                                                                                                                                                                                      do 580 J-1, n
                                                                                                                                                                                                                                                                                                                                                                                               do 630 1-1, n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 610 j-1, n
                                                                                                                                                                                                                                                                                                                                                                                                                                       do 600 J-1,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        write (6, 670)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        620 1w(1) -std(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       [w(1)=[w(x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             v(), k) -wx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               610 v(k, j) =wx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    wx=v(1, ))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 x x = 1 x ( 1 )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1w(x)-1wx
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  go to 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                   wx=v(j,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   630 continue
                                                                                                                                                 1-14-11
                                                                                                                                                                                                                                                                                                                                                                                                                           X=1x(1)
                                                                                                                                                                                      11-1-1
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                                                                                                                                                                                                   back substitution to obtain solution which is stored temporarily
                                                                                                                                                                                                                                                                                                                                                           put the solution in its correct order and store in x(j) j=l,n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          section for obtaining variance-covariance matrix
                                                                                                                                                                                                                                                                                                                                   finish off and compute residuals if required
                                                                                                                                                                            If (res, and, negml, and, .not, megn) go to 390
                                                                                                                                                                                                                                                                                wx*b{1) - fm32as(n-1,a(1,1+1),1a,b(1+1),1)
                                                           elimination step for right hand sides.
                                                                                 b(1) -b(1) -fin02as (m1, a(1, 1), ia, b(1), 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         main return point to calling program.
                                                                                                                          begin applying transfo: ation q2
        380 b(k) -b(k) - (1. -w(n+k) +w(k) -w(k))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               forrat('0', a8, lx,' residuals')
call oa02a(b,m, 10, 6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          print solution and residuals.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               write(6,510) name
format('0',a8,1x,'solution')
                                                                                                                                                                                                                                                                                                                                                                                                                             If(.not.res) go to 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(.nct.res) go to 530
                                  1f (nx.eq.n) go to 420
                                                                                                                                                                                                                                          if(n.eq.1) go to 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call oa02a(x, n, 10, 6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (lpr.gr.0) return
                                                                                               410 1f (neqm1) go to 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (fineqmi) go to 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(vflag) go to 550
                                                                                                                                                                                                                   in b(1) i-1 to n.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f (megn) go to 500
                                                                                                                                                                                                                                                                                                                                                                                                                                         residuals required
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540 1f(meqn) go to 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   write (6,520) name
                                                                                                                                                                                                                             (u, n) e/ (n) d= (n) d
                                                                         do 400 1-m11,m
                                                                                                                                                                                                                                                        do 440 11-1, nn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              do 490 i-mll,m
                                                                                                                                                                                                                                                                                               b(1) -wx/a(1,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   swtch".false.
                                                                                                                                                                                                                                                                                                                                                                           do 460 1-1, n
                                                                                                                                                                                                                                                                                                                                                                                                                                                        do 480 i-1,n
                                                                                                                                                                                                                                                                                                                                                                                                   x(1x)=p(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1) --- (1) 9
                                                                                                                                                                90 to 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to 330
                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                        1×-1×(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     b(!)-0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
                                                                                                                                                                                                                                                                       1-n-1
                                                                                                                                                     E XE
                                                                                                                                         Z-X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
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nal4a.f

fm02as=fm02as+a(1+(k-1)*ia)*b(1+(k-1)*1b) (unction fm02as(n,a,la,b,lb) real a(1),b(1) real*8 fm02as do 1 k=1,n fm02as=0 continue end ma103850 ma103860 ma103870 ma103900 ma103910 ma103920 ma103930 ma103950 ma103960 ma103970 0a000110 0a000120 0a000130 04000140 oa000160 oa000170 oa000180 oa000200 oa000210 04000300 04000310 04000320 04000330 oa000450 oa000460 oa000470 0a000480 0a000490 0a000500 ma103880 ma103890 ma103940 ma103980 ma103990 03000000 0a0000a0 02000000 08000080 09000B0 00000000 oa000230 09000240 0900000 09000560 0a000270 oa000280 oa000290 04000340 09000350 04000360 oa000370 oa000380 04000390 0900000 04000410 02000000 08000430 0a000440 730 write(6,740) name 740 (ormat('0',a8,' error: argument restrictions violated') 60 write(6, fmc) (j,b(j), j=12,14,nc) If(im.eq.l.or.il.eq.nc)goto 80 write(6, fmt) (j,b(j), j=12,14,nc) subroutine oa02a(b,m,nc,nsfa) wrlte(6,60) name,ml,mm,n special case ml = n 710 do 720 i=1,n do 720 j=1,n 1f(m10.ne.0)goto 10 error conditions nf=nsf+8 fmt (6) = it rans (nf) fmt (8) = it rans (nsf) fmt (4) -1t rans (110) 30 1f(1k-1) 90,40,50 40 11-1t fmt (2) = it rans (k) do 70 1=111,nc 12=1tab+1 x-126/(nf+110) 1tab=1tab+nc*k 1t-m-(1m-1) *nc 20 im=(m-1)/nc+1 ik=(im-1)/k+1 13-(1m-1) *nc 50 do 60 1-1,11 write(6,999) 999 format ('0') 13-nc* (k-1) 10 m10-m10/10 90 to 640 131-13-nc go to 530 720 4(1, 1) -0. 110-110+1 12-1cab+1 14-12+13 name oa02a(r) nsfr*nsf 111-11+1 m-m-m goto 30 1k-1k-1 lm-lm-x itab-0 return 700 var=0. end 5 8 99

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.and.mod(np,1000).eq.0) then area,',np,' points have been included
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call bar(tgl,np,mk,r,next,sites,radius,center)
call recon(tgl,r,next,sites,radius,center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            common /mode/ exitmode, moda, pointmode, icount
                                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine triala (r, next, sites, radius, center)
                                                                                                                                                                                                             call output (r, next, sites, radius, lord, lhardco)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (nost.ge.1000.and.mod (np, 1000).eq.0)
    print *,' *** points have
end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call search(tgl,np,ok,mk,r,next,sites)
if(ok) then
                                                                                                                  if(rdmax.le.le-50) then
  call detrad(rdmax,radius,radv,iord)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call initt(r, next, sites, radius, center)
print *,' radius of confidence ?'
                                                                    rdmax=rdmax0*"2
definition of radius of confidence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subroutine dtris(kt,int,r,sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   real backvec(3) /0.0,0.0,0.0/
                                                                                                                                                                                                                                                       print ., . ---> end of job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Integer next (3, 1), sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real radius(1), center(2,1)
                                                                                                                                                                     rdmax0-sqrt (rdmax)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 common /points/ nost, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       common /points/ nost, ntr
                                                                                                                                                                                                                                     call pilder(' triang')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real legend(3,ncol)/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #include<fdevice.h>
parameter(ncol=13)
                                                                                                                                                                                                                                                                               call winclo (191d)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 20 np=2, nost 00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ndp=ndp+1
                   read ., rdmax0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.0,0.0,0.8,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.0,0.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 common mccoi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           continue
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  integer tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nost00-nost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          logical ok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   finclude<fgl.h>
                                                endif
                                                                                                                                                                                                                                                                                                                                                        close (7)
                                                                                                                                                                                                                                                                                                              close (1)
                                                                                                                                                                                                                                                                                                                                  close (2)
                                                                                                                                                                                                                                                                                                                                                                                  return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              t 91-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0-dpu
                                                                                                                                                                                                                                                                                                                                                                                                        end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
      OO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      common /lider/ifo,isu,nmi0,xmax,xmin,ymax,ymin,zmax,zmin,grid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              madst, rdmax0, idra, iwin, idrm, msav, lig, miner, kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          open(1,flle-'rescales',status-'old',form-'unformatted')
open(2,flle-'tempor',status-'unknown',form-'unformatted')
                                                  triangulation of initial points and adding of dual points
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          print *," triangulation of initial points is constructed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 10 11=1,maxst-10
read (1 ,end=1020,err=1010) r(1,11),r(2,11),r(3,11)
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ***>', nost,' points have been read
                                                                                                                                                                                                                                            maxst - maximal number of points in the model
                                                                                                                                                                     sites - pointers for points of the triangle radius - radius of circle for gien triangle center - its center
                                                                                                                                                 next - pointers for neighbouring triangles
                                                                                              'nost' - # points, 'r' - their coordinates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call triala (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pepectpoltx tplahgulqci'
common/lala/next,sltes,r
common /workl/ radlus,center, radv,lord
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call tryl(textl)
call windo(r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call triala(r, next, sitec, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print ", " ... dimension maxst too small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(idra.le.0) then
print *, ' diaw the triangulation ?'
                                                                                                                                                                                                                                                                                                                                                                                                                                   Integer next (3, mmaxtr), sites (3, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           real radius (mmaxtr), center (2, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---> error reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               real radv (mmaxtr), iord (mmaxtr)
    subroutine show(text), ihardco)
                                                                                                                                                                                                                                                                                                                                                                                    character*50 text1, fllename
                                                                                                                                                                                                                                                                                                                                    , mmaxtr=2*maxst)
common /points/ nost,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call getans (1dr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             open (7, file-'triang')
open (4, file-'leader')
                                                                                                                                                                                                                                                                                                            parameter (maxst = 70000
                                                                                                                         'ntr' - ! trlangles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common /win/ lgid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ff(idrl.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call dsna (200, r)
                                                                                                                                                                                                                                                                                                                                                                                                             real r(3, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Integer systeme
                                                                                                                                                                                                                                                                                          #include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call glider
                                                                               flat case
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                idrl-idra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           print ., '
                                                                                                                                                                                                                                                                    (include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1020 nost-11-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end1 £
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1030 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
```

1:(rdmax0.lt.0) then

show.f

```
common /lider/ ifo, isu, nmiO, xmax, xmin, ymax, ymin, zmax, zmin, grid, common /lider, trdmaxO, idra, iwin, idrm, msav, ilq, miner, kva
mcolx= (sca*(r(3, sites(mm(i), nt)-zmin)))+2.0
           x(1)=r(1,sites(mm(1),nt))
x(2)=r(2,sites(mm(1),nt))
if(x(1).lt.0.or.x(1).gt.1) goto 20
if(x(2).lt.0.or.x(2).yt.1) goto 20
call c3f(legend(1,mcolx))
call v2f(x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call c3f(legend(1,mcol))
call c1rcf(r(1,nt),r(2,nt),0.5**adlus)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sca = ncol/(zmax-zmin)
mcol = int((r(3,nt)-zmin)*sca)
radius=:1/sqrt(1.*nost)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if(x.it.0.or.x.gt.1) goto 10
if(y.it.0.or.y.gt.1) goto 10
                                                                                                                                                                                                                                                                                                                            subroutine chunks (r, mst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        common /points/ nost, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subroutine dsna(int,r)
                                                                                                                                                                                                                                                                                             parameter (ncol-13)
                                                                                                                if (moda .eq.0) then call endclo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 10 nt=1,mst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call virs
do 10 np=1,nost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x=r(l,np)
y=r(2,np)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-255-y*255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      real r(3,1)
                                                                                                                                                              call endpol
                                                                                                                                                                                        continue
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-x*255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                  return
                                                                                                                                                                         end 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                else
                                                                                                     2
                                                                                                                                                                                         22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ខ្ព
                                                                                                                                               common /lider/ 1fo, isu, nmi0, xmax, xmin, ymax, ymin, zmax, zmin, grid, madst, rdmax0, idra, iwin, idrm, msav, llg, miner, kva, lpog, lpik, ipog
                                                                                                                                                                                                                                                                                                                                                                                   if (r (3, sites (mm (1), nt)) . lt. zmin-9) zl-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(x(1).lt.0.or.x(1).gt.1) goto 21
1f(x(2).lt.0.or.x(2).gt.1) goto 21
                                                                                                                                                                                                                                real bordovec(3)/0.3,0.0,0.3,
mm(1)=mod(1,3)+1
                                                                                                                                                                                                         real x(2),y(3),z(3)
real backvec(3)/0.0,0.0,0.0/
                                                                                                                                                                                                                                                                sca = (ncol-2) / (zmax-zmin)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    x(1) =r(1, sites(mm(1), nt))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x(2)=r(2, sites(mm(1), nt))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (moda .eq.0) then
call c3f (bordovec)
else
                                                                                                                                                                                                                                                                                                                                                                                                                                            If (moda .eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  if (moda .eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call c3f (backvec)
                                                                                                                                                                                                                                                                                                                                                                                                                if(zl.lt.l) then
if(k.eq.l) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              if (moda .eq.0) then call bgnclo
                                                                                                                                                                                         Integer sites (3,1)
                           1.0 ,0.9,0.0
1.0 ,0.8,0.0
1.0 ,0.6,0.0
1.0 ,0.4,0.0
1.0 ,0.2,0.0
1.0 ,0.0,0.0
                                                                                                                                                                                                                                                                               call c3f (backvec)
             0.0,1.0,0.0,
 0.0,8.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call v2f(x)
continue
                                                                                                                                                                                                                                                                                                                                         do 10 nt-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call bgnpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 21 1-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call endpol
                                                                                                                                                                                                                                                                                                                                                                      do 19 1 - 1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                            call bgnclo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call endclo
                                                                                                                                                                                                                                                                                                                           do 30 k-1,2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call bgnpolend if
                                                                                                                                                                                                                                                                                                                                                                                                   continue
                                                                                                                                                                                                                                                                                              call clear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      goto 10
end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                             mhru - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e i se
                                                                                                                                                                                                                                                                                                                                                         2]-]
                                                                                                                                                                                                                                                                                                                                                                                                   6.
```

do 20 1-1,3

```
common /mode/ exitmode,moda,pointmode,icount
common /lider/ ifo,isu,nmiO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmaxO,idra,iwin,idrm,msav,ilg,miner,kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subroutine processinput (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             common /mode/ exitmode,moda,pointmode,icount
common/popup_stuff/ meru,submenu
character*1 string2*30,string3*30
character*1 string1*14, string2*25, string3*25
                                                                                                                                                                                                                                                                                                                               call cmov2(1.04,0.50)
call charst (stringl,4)
write (string2,*) 'Hit the right button'
write (string3,*) ' to get the menu '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call Drawob) (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      call rectf(1.01,0.95,1.25,0.99)
                                                                                                                                                                  real backvec (3) /0.0,0.0,0.0/
                                                                                                                                                                                        real yelvec (3) /1.0, 1.0, 0.0/
real bluevec (3) /0.0, 0.0, 1.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Integer*2 val,mx,my,mcx,mcy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       do 1000 while (dev .ne.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (menuval .eq. 5) then
                                                                                                                                                                                                                                          call dtris(0, int, r, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if (menuval .eq. 6) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if (menuval .eq. 4) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if(dev .eq. RIGHTM) then
menuval = dopup(menu)
                              common /points/ nost, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          real radius(1), center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call charst (string3,23)
call cmov2(1.02,0.98)
call charst (string2,23)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cmov2 (1.02,0.96)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               integer do job ,ch_col
integer menuval
                                                                                                                                                , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                call c3f(bluevec)
                                                                                                                                                                                                                                                                                    write(stringl,*)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call c3f(yelvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dev - qread(val)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do_job = 0
ch_col = 0
dev = qtest()
format(f8.4)
                                                      common mccol
                                                                                                                                                                                                                                                                  call palette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exitmode - 1
                                                                                                                                                                                                                                                                                                              format (f8.4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              finclude <fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Integer dev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call swapbu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 goto 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          finclude <fql.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        moda : 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ca I I
                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call addtop(menu,' DATA CHANGE tladd pointicopy point',50,0) call addtop(menu,' remove point | WIRED MODEL|MAP|EXIT ',50,0) call ortho(0.0,1.3,0.0,1.0,-1.0,1.0) do while (1) do while (1)
                                                                                                                                                                                                                                                                                                                                      common /mode/ exitmode, moda, pointmode, icount
common /lider/ ifo, isu, nmiO, xmax, xmin, ymax, ymin, zmax, zmin, grid,
madst, rdmaxO, idra, iwin, idrm, msav, lig, miner, kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine Drawobj(r,next,sites,radius,center)
parameter(ncol= 13,step = 1.0/ncol,Delta= 0.007)
                                                                                                                                                  parameter(ncol = 13, step = 1.0/ncol, Delta = 0.007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call processinput (r, next, sites, radius, center)
                                                                                                                                                                                                                                   real radius(1), center(2,1)
character 1 string1 14, string2 25, string3 25
common /points/ nost, ntr
                                   subroutine windo (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call Drawobj(r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      !gid = winope("trlangulation", 13)
call winset(igid)
                                                                                                  common/popup_stuff/ menu,submenu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call tle (LEFTMO, MOUSEX, MOUSEY) call tle (MIDDLE, MOUSEX, MOUSEY)
                                                                                                                                                                                                                                                                                                                                                                                                                                real backvec(3)/0.0,0.0,0.0,0.0/
real yelvec(3)/1.0,1.0,0.0/
real bluevec(3)/0.0,0.0,1.0/
call prefpo(0,1270,0,1000)
call foregr
                                                                                                                                                                                                                        integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              If(exitnode .eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                 , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pointmode = 1 call qdevic(LEFTMO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call qdevic (RIGHTM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qdevic (MIDDLE)
                                                                                                                                                                               common /win/ 1914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             c3f (backvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    menu - newpup()
                                                                                                                                                                                                                                                                                                                       common mccol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exitmode = 0
                                                           include<fgl.h>
include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call swapbu
                                                                                                                                                                                                       real r (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RGBmod
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gconfi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real r (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     clear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        goto 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              moda - 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mccol =-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call
call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call
```

integer sites (3,1)

```
show.f
```

```
character'i string'27, stringl'4, string2'12, string3'12, str4+12 string = ' zcoord'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       common /points/ nost,ntr
common /lider/ ifo,isu,nmi0,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmax0,idra,iwin,ldrm,msav,lig,miner,kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine change_col(xcol,ycol,r,next,sites,radius,center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             parameter(ncol = 13,x1=1.15,y1 = 0.05,s1x =
                                                                                                                                                                                                                                                                                                                      call rectf(x1,y1+(i-1)*siy,x1+six,y1+i* siy)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              character*1 string4*12, string3*12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             character*1 string1*12, string2*12
                                                                                                                                                                                                                                                                                                                                                                     rect(xl,yl,xl+six,1.0-yl)
circ(1.08,0.5,0.05)
                                                                                      real blackvec(3) /0.0,0.0,0.0,0.0real redvec(3) /1.0,0.0,0.0real backvec(3)/0.8,0.8,0.8,0.8
                                                                                                                                                                                                                                                                                                                                                                                                                                   call c3f(legend(1,mccol))
call rectf(1.02,0.5,1.12,0.6)
                                                                                                                                                                                                                    call rectf(1.0,0.0,1.3,1.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                       sly = (1.0 - 2*yl )/ncol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             real radius(1), center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cmov2(x1-0.1,2*y1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call cmov2(x1-0.1,1-y1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call charst(string2,17)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call charst (string3,17)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                write (string2, 13) zmin
write (string3, 13) zmax
write (str4, *)' Hole'
                                                                                                                                                                                                                                                                                                    call c3f(legend(1,k))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call cmov2(x1-0.1,y1)
call charst(str4,17)
                                                                                                                                                                                                                                                                                                                                                                                                     cmov2 (1.04,0.43)
                                                                                                                                                                                                                                                                                                                                                                                                                      charst (string, 6)
                                                                                                                                                                                                                                                                                                                                                      call c3f (blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integer*2 xcol,ycol
                                                                                                                                                                                                       call c3f (backvec)
         1.0 ,0.6,0.0 ,1.0 ,0.2,0.0 ,1.0 ,0.0,0.0 ,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common mccol
                                                                                                                                                                                                                                                                     do 1 1-1,13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  format (f8.4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             finclude<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               real r(3,1)
                                                                                                                                                           integer
                                                                                                                                                                                                                                                                                                                                       continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            integer tgl
logical ok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | include<fgl.h>
                                                                                                                                                                                                                                                                                      X=X+1
                                                                                                                                                                                                                                                                                                                                                                     call
                                                                                                                                                                                                                                                                                                                                                                                      call
                                                                                                                                                                                                                                                                                                                                                                                                     call
                                                                                                                                                                                                                                                                                                                                                                                                                      call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :
                                                                                                                                                                                                                                                                                                                                     ~
                                                                                                                                                                                                                                                                                                                                                                                                                                     υv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call make_change(mx,~y,r,next,sites,radius,center)
                                                                                                                                                                                                                                                                                                                            call change col (mcx, mcy, r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parameter(ncol = 13,x1=1.17,y1 = 0.07,s1x = 0.1)
call Drawobj(r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                            do 1001 while (qtest () .eq. 0 )
                                                                                                                                                                                                                                                               else if (dev .eq. MIDDLE) then
                                                                                                                                                                                                                                                                                                                                                                              else if (dev .eq. LEFTMO) then
                                                                 if (menuval .eq. 1) then
                                                                                                                              if(menuval .eq. 2)then
pointmode = 2
icount = 0
                                                                                                                                                                                                             If (menuval .eq. 3) then
                                                                                                                                                                                                                                                                              1f (val .eq. 1) then
1= qread(mcx)
                                                                                                                                                                                                                                                                                                                                                                                             if (val .eq. 1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subroutine palette
                                                                                pointmode - 1
                                                                                                                                                                                                                               pointmode = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call palette
                                                                                                                                                                                                                                                                                                              k- gread (mcy)
                                                                                                                                                                                                                                                                                                                                                                                                            m - qread (mx)
                                                                                                                                                                                                                                                                                                                                                                                                                            n = qread(my)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         common mccol
                                                                                                                                                                                                                                                                                                                                             do job = 0
end 1f
                                                                                                 end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          continue
                                                                                                                                                                              end if
                  end 1f
                                                                                                                                                                                                                                                end 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end do
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end
                                                                                                                                                                                               · removing
                                                                                                                · copying
                                                · adding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ., .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666
```

```
common /mode/ exitmode, moda, pointmode, icount
common /lider/ ifo, isu, nmi0, xmax, xmin, ymax, ymin, zmax, zmin, grid,
nadst, rdmax0, idra, iwin, idrm, msav, ilg, miner, kva
                                                                                                                                                                                                                                                      character*1 string1*12, string2*30, string3*30, string4*30 real r(3,1)
                                                                                                  subroutine make_change(x, y, r, next, sites, radius, center)
                                                                                                                                               parameter(ncol = 13,Delta = 0.007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real bluevec (3)/0.0,0.0,1.0/
real yelvec (3)/1.0,1.0,0.0/
                                                                                                                                                                                                                                                                                                Integer next (3, 1), sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(pointmode .eq. 1) then
                                                                                                                                                                common mccol
common /points/ nost,ntr
                                                                                                                                                                                                                                                                                                                 real radius(1), center(2,1)
                                                                                                                                                                                                                                         , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                          real legend(3,ncol)/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x3=(1.3/1270)*x
y3= (1.0/1000)*y
                                                                                                                                                                                                                                                                                                                                                                                                        0.0,0.0,0.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0,0.0,1.0
                                                                                                                                  # Include< fdevice, h>
                                                                                                                                                                                                                                                                                                                                                                          real x3,y3
                                                                                                                                                                                                                                                                                                                               integer tgl
logical ok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tg1 - 1
                                                                                                                    | Include<fgl.h>
return
end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            adding.
                                                                                                                                                                                                                                                                                                                                                                                             if(xc .lt. xl .or. xc.gt. (xl+six) ) then mccol = -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    If (mccol .lt. 0 .or. mccol .gt. 13) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 if( mcold .gt. 1) then
write(string2,12) zmin + zdel*(mcold)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 write(stringl,12)zmin + (mccol)*zdel
                                                                                                                                                                                                                                                                      real blackvec(3)/0.0,0.0,0.0,
                                                                                                                                                                                                                                                       real backvec(3)/0.8,0.8,0.8/
                                                                                                                                                                                                                                                                                                                  zdel - (zmax-zmln)/(ncol-2)
                                                                                                                                                                                                                                                                                                                                                                                                                                    mccol = ((yc -y1)/sly)+1
end 1f
                                                                                                                                                                                                                                                                                                                                              siy = (1.0 - 2*yl)/ncol
xc = (1.3/1270) * xcol
yc = (1.0/1000) * ycol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                if( mcold .gt. 0) then
write(string2,*)* Hole*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write(stringl,") ' Hole'
           1f (mccol.gt.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              If (mccol .gt.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          write (stringl, .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              write (string2, *)
                                                                                                                                                                                                                                                                                                     mcold- mccol
  real xc,yc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ~
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mcco)
                                                                                                                                                                                                                                                                                                                                                                                                                            else
```

call add_point (x3,y3,z ,r,next,sites, radius, center)
end if
end if
if (point = icount + 1
if (lcount .eq. 1) then
call copy_point (x3,y3,z,r,next,sites, radius, center)
else
call add_point (x3,y3,z,r,next,sites, radius, center)
end if
end if
end if

7.5

format (f8.4)

end 1f end 1f call frontb(.TRUE.)

call c3f(backvec) call cmov2(1.04,0.5) call charst(string2,12)

charst (stringl, 12)

call frontb(.FALSE.)

call cmov2(1.04,0.50)

c3f (b) ackvec)

ø

```
show.f
```

```
common /lider/ ifo,isu,nmiO, mmax, xmin,ymax,ymin,zmax,zmin,grid, madst,rdmaxO,idra,iwin,idrm,msav,ilg,miner,xva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subroutine remove_point (x3, y3, r, next sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /mode/ exitmode, moda, pointmode , icount
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call search(tgl,nost+),ok,mk,r,next,sites)
call distance(r,sites,nost+1,tgl,rad,m)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                parameter(ncol = 13,Delta = 0.007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real blackvec (3)/0.0,0.0,0.0/
                                                                                               real backvec(3)/0.0,0.0,0.0/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lnteger next(3,1),sites(3,1)
real radius(1),center(2,1)
                                                                             real link (3)/0.9,0.9,0.9/
                                                                                                                                                                                                                                                                                                                                                                                                                                              call c3f(legend(1,mcolx))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call c3f(legend(1,mcoly))
call c1rcf(y1,y2,.005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      common /points/ nost, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r(3,nost+1) = zmin = 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   call circf(x1, x2, .005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , ipik, ipog
                                                                                                                                                                                                                                                    sca - ncol/(zmax-zmin)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      If(m .lt. 0) return
                                                                                                                                                                                                                                                                                                                                                                                                          call move (x1, x2,0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                             call draw(y1,y2,0.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call frontb(.TRUE.)
call c3f(blackvec)
                                                                                                                                                                                                                                                                       mcolx= (x3-zmin) *sca
                                                                                                                                                                                                                                                                                         mcoly- (y3-zmin) sca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         real r(3,1), point (2)
                                                                                                                                                                                                                                                                                                                                                                     call c3f (backvec)
                                                                                                                                                                                                                                                                                                             if (kt.eq.0)then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  r(1,nost+1) = x3
r(2,nost+1) = y3
1.0 ,0.2,0.0 ,
                                                                                                                                                                                                                                                                                                                                 call c3f (11nk)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rad . Delta..2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     common mccol
                                                                                                                     real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #include<fdevice.h>
                                                                                                                                                                                             y1-r(1, n2)
y2-r(2, n2)
                                                                                                                                         x1=r(1,n1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real x3, y3
                                                                                                                                                         x2-r(2, n1)
                                                                                                                                                                           x3*r(3,n1)
                                                                                                                                                                                                                                 y3-r (3, n2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               integer tgl
                                                                                                                                                                                                                                                                                                                                                                                       end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgl - 1
                                                                                                                                                                                                                                                                                                                                                     e) se
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       parameter (ncol-13)

common /lider/ lfo,isu,nml0,xmax,xmln,ymax,ymln,zmax,zmln,grld,
madst,rdmax0,idra,iwln,ldrm,msav,llg,mlner,kva
,lplk,pog
real legend(3,ncol)/
                                                      call remove_point(x3,y3,r,next,sites,radius,center)
                                                                                                                                                                                                                                                                                                                                                                                                          write(string4,*) 'The point is chosen' write(string1,12) z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  write (string2,*) 'Hit right button'
write (string3,*)' to get menu'
call cmov2(1.02,0.96)
                                                                                                                                                                                                                   write(string), 12) zmin+mccol*delz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call rectf(1.01,0.95,1.25,0.99)
call c3f(yelvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subroutine vector (r,nl,n2,kt,l)
                                                                                                                   delz = ( zmax - zmin ) / (ncol-2)
                                                                                                                                         call dtris(0,int,r,sites)
                                         if (pointmode .eq.3) then
                                                                                                                                                                                                                                                       1f(mccol .eq.1)then
write(stringl,*) ' Hole'
                                                                                                                                                                             1f (pointmode .eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       if(pointmode .eq.2) then
call cmov2(1.001,0.57)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call charst (string), 12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call charst (string3,23)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cmov2(1.02,0.98)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call charst (string2, 23)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call charst (string4,23)
                                                                                                                                                                                                                                                                                                                                                                                           if (pointmode.eq.2) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call cmov2 (1.04, 0.50)
                                                                                                                                                                                               If (mccol .gt.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call c3f(blackvec)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               call c3f (bluevec)
                                                                                                                                                                                                                                                                                                               write(stringl,*)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      format (18.4)
                                                                                                                                                           call palette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.0,0.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           call swapbu
                                                                               end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ca 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                                                                                                                                                                                                                   end 1f
                                                                                                                                                                                                                                                                                               e j se
                                                                                                                                                                                                                                                                                                                                                                         end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end
                       · removing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
```

```
call bar(tql,nost,mk,r,next,sites,radius,center) call recon(tql,r,next,sites,radius,center)
                                                                                                                                                                                                                                         call search (tgl, nost, ok, f', r, next, sites)
                                                                                                                                                                                            r(3, nost) - zmin + float (mccol-2) * delz
                                                                                                      delz = ( zmax - zmin ) / (ncol-2)
                                                                                                                                                  if (pointmode .eq. 2) then
                                             r(2,nost) = y3
r(3,nost) = zmln-10
                                                                                                                    r(1, nost) = x3
                              r (1, nost) = x3
                                                                                        nost - nost +1
                                                                                                                                    r(2, nost) - y3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0,0.0,0.0
                                                                                                                                                                 r(3,nost) * z
                                                                                                                                                                                                                                                        If (ok) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          common mccol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.0,0.0,0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real x3,y3
                                                                                                                                                                                                                                                                                                                                                                                                                                       finclude<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       integer tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     logical ok
                                                                                                                                                                                                                                                                                                                                                               return
                                                                                                                                                                                                                                                                                                                                                                                                                         #include<fql.h>
                                                                                                                                                                                                                           end 1f
                                                                                                                                                                                                          end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common /lider/ ifo,isu,nmiO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
                                                                                                                                                                                                                                                                                                                                                                            subroutine add_point (x3, y3, z, r, next, sites, radius, center)
                              call circf(r(1, sites(m, tgl)), r(2, sites(m, tgl)), Delta)
call frontb(.FALSE.)
                                                                                                                                                                                                call triala (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                         parameter(ncol = 13,Delta = 0.007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call c3f(legend(l,mccol))
call c1rcf(x3,y3,Delta)
call frontb(.FALSE.)
if(mccol.gt.0) then
if(mccol.eq.l) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        integer next(3,1), sites(3,1)
real radius(1), center(2,1)
integer tgl
logical ox
                                                                                                                                                                                                                                                                                                                                                                                                                                                   common /points/ nost, ntr
                                                                                       do 10 1 = n,nost -1
do 20 k = 1,3
r(k,1) = r(k,1+1)
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , ipik, ipog
                                                                          · remove the point from the r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real legend (3, ncol) /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call frontb(.TRUE.)
                                                           n - sites (m, tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common mccol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                real x3, y3
                                                                                                                                                     nost *nost -1
                                                                                                                                                                                                                                                                                                                                                                                                         *include<fdevice.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 real r(3,1)
                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                           •include<fgl.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101 - 1
show.f
                                                                                                                      202
```

```
common /lider/ ifo,isu,nmiO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmaxO,idra,iwin,idrm,msav,ilg,miner,kva
subroutine copy_point (x3, y3, z, r, next, sites, radius, center)
                                                                                   parameter(ncol = 13,Delta = 0.007)
                                                                                                                                                                                                                                                                                                     integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgl = 1
sca = (ncol-2)/(zmax-zmln)
                                                                                                                                        common /points/ nost, ntr
                                                                                                                                                                                                                                                                                                                                 real radius(1), center(2,1)
                                                                                                                                                                                                                      , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real legend (3, ncol) /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 r(1,nost+1) = x3
r(2,nost+1) = y3
r(3,nost+1) = 0
                                                                                                                                                                                                                                                                                                                                                                                                               character*40 string
```

nost = nost+1

```
rad - Delta**2
```

```
n = sites(m,tgl)
mccol= (sca*(r(3, sites(m,tgl)-zmin)))+2.0
call frontb(.TRUE.)
call a3f(legend(1,mccol))
call circ([r(1, sites(m,tgl)),r(2, sites(m,tgl)),Delta)
call frontb(.FALSE.)
z = r(3, sites(m,tgl))
call search(tgl,nost+l,ok,mk,r,next,sites)
call distance(r,sites,nost+l,tgl,rad,m)
if(m .it. 0) return
```

œ

```
print ",'---> dimension maxpol is too sma.] <---'
print ",'---> put maxpol equal to amount of <---'
print ",'---> points in input file
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          f(11, kk) = (f(11, kk) *num(kk) + ff(11))/(num(kk)+1.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     firstl.gt.maxst) then

print ","==> dimension maxst is too small <==="
print ","==> put maxst = ',nstl,' <==="
print ","==> or decrease the size of grid <==="
stop 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1f(!fo.eq.0) read(!) xx,yy,(!ff(!j),!j=1,nm!!)
1f(!fo.ne.0) read(!,*) xx,yy,(ff(!j),!j=1,nm!!)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             call agrid(x, y, nst, nnor, nstl, work, maxpol, maxwor)
                           do 11 11-1 maxpoi+1
read (1,*,end=1020,err-1010) x(11),y(11)
                                                                                                                                                                                                                                                                       `--·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   r(1, kk) = (r(1, kk) *num(kk) +xx) / (num(kk) +1.)
r(2, kk) = (r(2, kk) *num(kk) +yy) / (num(kk) +1.)
                                                                                                                                                                                                                                                                                                                                   format (' ',16,' points have been read')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print *, 'line * lll nstl = ', nstl
                                                                                                                                                                                                                                                                                                                                                    if(xmax**2+xmin**2.le.le-50) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lf(ymax**2+ymin**2.le.le-50) then
                                                                                                                                                                                                                                                                   ---> error reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sx* (1.- (xmax-xmin) *compr) /2
sy* (1.- (ymax-ymin) *compr) /2
               open(1,file = filename)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compramin (compri, compri)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   xmax-max(xmax,x(11))
xmin-min(xmin,x(11))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 787 il=1,nst
ymax=max(ymax,y(il))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ymin-min (ymin, y (11))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(kk.lt.1) goto 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       print *, 'nst = ', nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            compr1-1./(xmax-xmin)
compr2-1./(ymax-ymin)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       num(kk)-num(kk)+1
                                                                                                                                                                                                                                                                                                                                                                                                                           do 786 11-1, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 745 ll-1, nmll
                                                                                                         continue
                                                                                                                                                                                                                                                                                                                                                                                  хмах--1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 630 1-1, nst1
                                                                                                                                                                                                                                                                                                                                                                                                      xmin- 1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                утах--1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ymin- 1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      do 747 i=1, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            kk-nnor(1)
                                                                                                                                                                                                                                                               print *, ' stop 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           num (1) =0
                                                                                                                            end1f
                                                                                                                                                                                                                                                                                                            1020 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end1 f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          end1f
                                                                                                                                                                                                                                           stop 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pndlr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nst-nst }
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rewind ]
                                                                                                                                                                                                                                                                   1010 print
                                                                                                      Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             786
                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                common /lider/ ifo,isu,nmiO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmaxO,idra,iwin,idrm,msav,lig,miner,xva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             open(2,flle='rescales',status = 'unknown',iorm ='unformatted')
open(4,flle='leader')
call glider
ipik = ipeak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            open(1,file = filename, status= 'old', form = 'unformatted')
do 10 11=1,maxpol+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ii .gt. maxlv) then print ','---> dimension maxlv is too small <---'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print ",'---> dirension nmin is too small <---' print ",'---> put nmin "',nmil,' :---'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       maxlv - '11', - vixem
                                                                                                                                    parameter (nmln=16)
  'nst' - f to-ek, 'r' - ix koopdihaty
maxpoi - number of points in the initial file
maxwor - dimension of working array
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     read (1 , end=1020,err=1010) x(11),y(11)
nst=nst+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                equivalence (amem(maxst*6+maxlv*6+1),r(1,1)) equivalence (amem(maxst*8+maxlv*6+1),((1,1))
                                                                                                                                                                                                                                                                                                                                                                                                                real*4 f(nmin, maxst), ff(nmin), num(maxst)
subroutine start (filename, norm, w, ipeak)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           equivalence (amem(maxpol+1),y(1))
equivalence (amem(maxpol*2+1),work(1))
                                                                                            parameter (maxpo1 = 35000, maxwor = 10000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11*Int (log(real (maxst)) /log(3.0)) +1
1f (11 .gt. maxlv) then
                                                                                                                                                                                                                                                                                                                                                                                                                                        real*4 amem (maxpoi*3+maxwor*3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           equivalence (amem(1), lord(1))
                                                                                                                                                                                                                                                                                                                                                Integer work (maxpol+maxwor*3)
                                                                                                                                                                                                                                                                                                                                                                     integer lord (maxst.6+maxlv.6)
                                                                                                                                                                                                                                                                              real*4 x (maxpol), y (maxpol)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      equivalence (amem(1),x(1))
                                      ordering along the snake
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(lpeak .eq. 1)lpog = 1
if(lpog.eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , ipik, ipog
                                                                                                                                                                                                                                                                                                     filename
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   common/lala/ num, nnor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           put
                                                                        parameter (maxst =30000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1f(nmil.gt.nmin) then
                                                                                                                                                                                                                                                                                                                           integer nnor (maxpol)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               common/workl/ amem
                                                                                                                                                                                                                                     parameter (max1v=20)
                                                                                                                     (nmln-1)
                                                                                                                                                                                                                                                                                                                                                                                           real*4 r(2,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nst.0
if(ifo.eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     print ., '--->
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nm11-nm10.2
                                                                                                                                                                                                                                                                                                   character 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nm11-nm10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       format (40a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              stop 18
                                                                                                                   parameter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             else
```

r(1,11) = (r(1,11) -xmin) *compr+sx

do 788 11-1, nst

continue

e 1 s c 0

end

```
subroutine agril(x,y,nst,nnor,nstl,iorl,ior2,npo,yl,raxwor)
common /lider/ ifo,isu,nmio,xmax,xmin,ymax,ymin,zmax,zmin,grid,
madst,rdmax0,idra,iwin,idrm,msav,ilg,miner,kva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print ',' --- dimension maxvor is too small <--- print ',' --- increase maxwor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     print ", " ... or decrease the size of grid
                                                                                                                                          Integer 1orl(1), nnor(1), npo(1), lor2(1)
                                                                                                                                                                                       do 737 ki=1,nst
nnor(ki)=0
print ', 'grid = ', jrid
dd-max((xmax-xmin), (ymax-ymin))/grid
cail kb07a(k,nst,iori)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f(y1(i).lt.ymin) goto 43
if(y1(i).gt.sty) then
if(sty.gt.ymax) goto 5
sty=sty+dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1f(y1(1).gt.sty) goto 782
kk=kk+1
                                                                                                                                                                                                                                                                                                                          If (x(1p5).ge.xmin) goto 774
                                                                                                                                                                                                                                                                                                                                                                                                                                      If (stx.gt.xmax) goto 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f(x(i).gt.stx) goto 35
iy=iy+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nnor (npo (lor2(1))) *kk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            goto 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                call kb07a(yl, 1y, 1or2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sty=max (ymin, yl (l)) +dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (iy.gt.maxwor) then
                                                                                                       , ipik, ipog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1f(ly.eq.0) qoto 5
                                                                                                                                                                                                                                                                                  do 773 ip5-1, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       yl (1y) -y (11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if (icheck.gt.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-lor1 (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            do 93 1-11, nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     npo (1y) -11
                                                                                                                     real*4 x(1), y(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  do 43 1-1,1y
                                                                                                                                                                                                                                                                                                                                                                                                                                                        stx-stx+dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1check-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        continue
                                                                                                                                                         real*4 yl(1)
                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                 stx-xmin
                                                                                                                                                                                                                                                                                                                                                                                                                     1check-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            endlf
                                                                                                                                                                                                                                                                                                        11-1p5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    kk-kk+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       goto 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cont I nue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nst1•kk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return
                                                                                                                                                                                                             737
                                                                                                                                                                                                                                                                                                                                         773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            782
                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call agril (x, y, nst, nnor, nstl, w (ml), w (m2), w (m3), w (m4), maxwor)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "File (2) (r(j,lord(1)), j=1,2), (f(1,lord(1)),1=1,nm11)
print *, (r(j,lord(1)),j=1,2), (f(1,lord(1)),1=1,nm11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(norm .eq.1 ) f(i77,i1) = f(i77,i1)/(zmax-zmin)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           subroutine agrid(x,y,nst,nnor,nstl,w,maxpol,maxwor)
integer w(1),nnor(1)
real x(1),y(1)
                                                                                                                                                                                                                                                                                                               cola = (zmax-zmln)/log(w+1)
do 1787 11=1,nst
do 1787 17=1,nm11
[(177,11)=f(177,11)=zmln
f(177,11) = f(177,11) = f(177,11) = f(177,11) = log(f(177,11)) = cmin)
                                                                                                                                                                                                                                                                                                                                                                                                                                               zmax1 = log(1+w*zmax/(zmax~zmin))*cola
                                                                                                                                                                                                                                                                                                                                                                                                                                                               zmin1 - log(1.w.zmin/(zmax-zmin)).cola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              call snake(r,lord,nst,maxlv,maxst)
r(2,11) = (r(2,11) -ymin) *compr+sy
if (isu.ne.0) then
do 783 177=1, nmil
f(177,11) = f(177,11) *compr
                                                                                                                                                                                                        zmax *max(zmax, f(177,11))
zmin=min(zmin, f(177,11))
                                                                                                                                                                                                                                                            format (a, f8.3, a, f8.3;
                                                                                                                                                                                     do 1786 177-1, nmll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ulmz- xemz * xemz
                                                                                                                                                  zmin= 1.e50
do 1786 il=1, pst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call plider" snake
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 If (Ind .eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   zmax - zmaxl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     zmin - zmini
                                                                                                                                   zmax--1.e50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 30 1=1, nst
                                                                                                                                                                                                                                              cont Inve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            continue
                                                                           continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    m2-m1+maxpol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73*#2+#ax40r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                o - ujuz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        m4-m3+maxwor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end 1f
                                                                                             end1f
                                                                                                                 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30 continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               close (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                close (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  close (4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    endif
                                                                                                                                                                                                                                         1786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1787
                                                                                                              788
                                                                           793
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snake.f

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subroutine split (lv, corner, nn, lord, mord, maxst, maxlv, x, 'of)
                                                                                                         ., corne. (4, maxlv), nn (2, maxlv), loid (maxst, 2), mord (nixst, 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                      test-1typ.eq.1.and. (k.eq.3.or.k.eq.4)
test-test.or.1typ.eq.2.and. (k.eq.2.or.k.eq.3)
                                                                                                                                                                                                                                                                                                                   dy=x(2, lord(n2, 2))-x(2, lord(n1, 2))
                                                                                                                                                                                                                                                                                                   dx=x(1, lord(n2, 1))-x(1, lord(n1, 1))
                                                                                                                                                                                                                                              if(n1.eq.n2) return
k*corner(l+corner(l,lv-l),lv-l)
                                                                                           Integer ladd(3), ibf (maxst, 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          corner(3, lv)=2*mod(k, 2)=1+k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1bf (!add (kx), ftyp) -11
                                                                                                                                                                                                        lv, nl n2
lv, nl,n2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-max(n2-1 *len+1, n1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if(ityp.eq.) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1f(ml.gt.n2) gota 1
m2*min(n2,ml+!en-1)
                                                                                                                                                                                                                                                                                                                                         if(dr.gt.dy) then
ityp=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nn(2,lv)-len+nl-l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  corner(3, lv) -5-k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ien - (n2-n1)/3+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-10rd()), 1typ)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1bf (5, 1typ) =11
mord(11,1typ) =5
                                                                                                                                real x(2,maxst)
end subroutine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cornor (1, 1v) =1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cornar (2, 1v) -k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     corner(4, lv) =k
                                                     Include (param)
                                                                                                                                                                                                          print ., lv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          if(test) then
                                                                                                                                                                    nl-nn(1,1v-1)
                                                                                                                                                                                        n2-nn (2, lv-1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 3 j-n1, n2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           do 2 1-m1,m2
                                                                         logical test
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         n (1, 1v) -nl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 1 1-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-11+1-m1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 add (1) -m3
                                                                                                                                                                                                                                                                                 tip delenia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        m1-m2+1
                                                                                                                                                                                                                                                                                                                                                                                                    12yp=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pointers
                                                                                                                                                    beg!n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       endlí
                                                                                                                                                                                                                                                                                                                                                                                                                      endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               m - n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (E-()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                * reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                integer corner(4,max:v), nn(2,max!v), lord(maxst, 2), mord(maxst, 2)
integer tbf(maxst*2)
                                                                                                                                                                                                                                                                                                       integer corner(4, maxiv), nn(2, maxiv), iord(maxst, 2), mord(maxst, 2)
                                                                                                                                                                                                                                                                                        subroutine snaki (r, tord, nst, mord, corner, nn, maxiv, maxst, order)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine uprspiinst, corner, nn, lord, moid, maxst, maxlv, x, lbf'
                                                                                                                                                call snakl(r,w(ml),nst,w(m2),w(m3),w(m4),maxlv,maxst,x(m5)) 0 16 1ml,nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call uprsp1 (ng:, corner r.), lord, mo.d, maxst, maxiv, r, order) call snasna 'nst, corner, nn, lorc, mord, maxst, maxiv)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       call split (lv,corner,nn,loid,mord,maxst,maxlv,x,lbf)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r2-vin(2*nn-r2,.v)+1-nn(1,1v),nn(2,1v-1))
nrint ', 'from wor',ni,n2
1f(ni,gt.n2) then
   subroutine snake (r, w, nst, maxlv, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                        order(1)=r(1d,1)
call xb07a(n;der,nst,lord(1,1d ))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mord (lord (mm, 1d1, 1d ) -- m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nn (2, 1v) +n2
corner(1, 1v) +corner(1, 1v) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       it (lv.eq.l) return
                                                                                                                                                                                                                                                                                                                                                real order (maxst 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               do 33 mmml, nst
                                                                                                                                                                                                                                                                                                                                                                                do 3 1d+1,2
do 6 1 =1,nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nn (1,1v) -n;
                       integer w(1)
real r(2,maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.000 (2, 10) +1
                                                                                                                                                                                             *(1) ** (1+maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         include (param)
                                                                                                                                                                                                                                                                                                                              rear r(2, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 corner(1, lv)-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   corner(2, lv1-1
                                                                                m2-m1+maxst * 2
                                                                                                m3-m2+maxst *2
                                                                                                                  m4-m3+maxlv*4
                                                                                                                                      m5-m4+max1v*2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              na (2, 1v) *nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 V = 1 V - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1- (A1 '1) uu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  red. A(.)
                                                                                                                                                                                                          cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              goto 88
end
                                                                                                                                                                                                                                     return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Erail
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 < 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2570
                                                                                                                                                                                                                                                      end
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snake.f
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subroutine snasna (n,corner,na,lord,mord,maxst,maxlv)
include (param)
integer corner(4,maxlv),nn(2,raxlv),lord(maxst,2),mord(maxst,2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  kx=(mm+1step-n+.1)/lstep2
print *, kx=', kx
nearn=rm=rk*istep2-istep
do 20 i=nearn,istep, (=istep2)
if(rod(i,m).eq.0) print *, error2','i=',i,m
j=j*i
iord(j,2)=iord(i,1)
continue
direct=:rue.
endif
                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(direct) then
do 10 '=istep,n=1,istep2
if(mod(1,m).eq.0) print ",'error"
                                                                                                                                                                                                                                                                              m=log(float(n))/log(2.)+1
m=2**m
                              continue
do 33 1=1, 2
do 33 1= 1, 2
lord(),1 )=lbf(),1)
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(istep.gu.1) goto 1
open(7,file="tesn")
do 39 i= 1, nst
#fle(7) i,iord(i,2)
continue
mord (11, 5typ) =1add (1k)
13dd (kk) =1add (kk) +1
                                                                                                                                                                                                                                                                                                                           !ord(1,2) =!ord(n,1)
!ord(2,2) =!ord(m/2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         end subroutine snasna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               lord(), 2) -lord(1, 1)
                                                                                                                                                                                                                                                                                                                                                         )=2
direct*.true.
istep=m/4
                                                                                                                                                                                                                                                                                                                                                                                                                    istep2-istep.2
                                                                                                                           return
end subroutine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              direct .. false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :step=:step/2
                                                                                                                                                                                                                                                   begin snasna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                                                                                                                                                                                                                                                                                                                                       continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          c:ose (7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e) se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  m-1step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         return
                                                                                                                                                         end
                                                                                                                                          :
                                                                                                                                                                                                                                                   :
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if (rdmax.le.le-50) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ndp-0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          υυυ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               common /lider/ Ifo,isu,nmlO,xmax,xmin,ymax,ymin,zmax,zmin,grid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           madst, rdmaxO, idra, iwin, idrm, msav, ilg, miner, kva
                                               triangulation of Initial points and adding of dual points
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *:ite(8,*) 'trianquiation of initial points is constructed'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          upen(2,file='tempor', status='unknown', form='unformatted')
open(7,file='triang')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print ., ' triangulation of initial points is constructed"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        V ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    >pen(1, file='rescales', status='old', form='unformatted')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          read (1,end-1020,err-1010) r(1,11),r(2,11),r(3,11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,==>
                                                                                                                                                                                                                                                   maxst - maximal number of points in the model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 print "," """>",nst," points have been read
                                                                                                                                                        next - pointers for neighbouring triangles
sites - pointers for points of the triangle
radius - radius of circle for glen triangle
renter - its center
                                                                                                        'nst' - # points, 'r' - their coordinates 'ntr' - # triangles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       print *, r(1,11),r(2,11),r(3,11)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print ., . ... dimension maxst too small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /vorkl/ radius, center, radv, lord
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          call triang(r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                              integer next (3, mmaxtr), sites (3, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                           real radius (mraxtr), center (2, mmaxtr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print %, % draw the triangulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    iffrdmax0.lt.0) ther
print ',' radius of confidence ?'
read ','rdmax0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             definition of radius of confidence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ...> error reading
                                                                                                                                                                                                                                                                                                                                                                                                                                                       real radv (mmaxtr), lord (mmaxtr)
             subroutine trian(ihardco)
                                                                                                                                                                                                                                                                                                                         common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1010 print *, * *** error re 1010 wite(8,*) error reading*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call getans (idil)
                                                                                                                                                                                                                                                                                                     , mmaxtr=2 maxst)
                                                                                                                                                                                                                                                                                                                                                                                                       common/lala/next, sites, r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , ipix, ipog
                                                                                                                                                                                                                                                                            parameter (maxst = 70000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            open(4, file='leader')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        call glider
do lo 11-1, maxst-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     call chunks (r,nst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     open(8, file ", text')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f(!dra.le.3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        write(8, .) '40 30'
                                                                                                                                                                                                                                                                                                                                                       real r(3, maxst)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ormat(' ', 15,a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    integer systeme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rdmax-rdmax0..2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              continue
                                                                                    flat case
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     :drl-idra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1020 ast #11-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..
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--->',np,' points have been included <---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call bar(tg), np,mk, r, next, sites, radius, center) pepectpoitx tplahguigci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             print *,' *** ', ndp,' points has not been included
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Inicializaciq
papametpy okpuvhocti, opicahhoj bokpug modeli
rbnd - padiuc, nbnbp - kol-bo to-ek ha okpuvhocti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call recon(tg), r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bkl '-itx to-ku 'np' b tpiahgulqci'. dlq Itogo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(nst.ge.1000.and.mod(np,1000).eq.0) then
print "," """> """> 'np', points have beer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cdelatx bapicehtpi~eckoe podpazdelehie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      print ",' ---> check, if you execute program
                                                                                              call output (r, next, sites, radius, lord, ihardco)
close (8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                subroutine triang (r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    subroutine initt(r,next,sites,radius,center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       write(8,*)'check,if you execute program '
call detrad(rdmax, radius, radv, iord)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hajtí tp-k 'tgl', b kotopom levít 'np'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            call search (tgl, np, ok, mk, r, next, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call initt(r,next,sites,radius,center)
                                                                                                                                                                    print "," www.ps end of job <=:
if (ind .eq.i) call tryl("text")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      snake properly
                                                                                                                                        call plider('triang')
print ',' **** end of job
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  write(8, ") snake properly"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Integer next (3, 1), sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            real radius(1), center(2,1)
                         rdmax0 - sqrt (rdmax)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (ndp.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print *, ' ***>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             do 20 np-2, nst00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1f (ok) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            end 1f
                                                end1 f
                                                                         1nd5 = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      integer tgl
                                                                                                                                                                                                                                                                       close(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nst CO-nst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              else
                                                                                                                                                                                                                      ind5 - 1
                                                                                                                                                                                                                                              close (7)
                                                                                                                                                                                                                                                                                                close (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               logical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            endif
                                                                                                                                                                                                                                                                                                                        teturn
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triang.f

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al-volum(r(1,np),r(1,sttes(2,tgl)),r(1,sttes(3,tgl)))
a2-volum(i(1,np),r(1,sttes(3,tgl)),r(1,sttes(1,tgl)))
if(al.ge.0.and.a2.ge.0.and.a3.ge.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a3=volum(r(1, np), r(1, sites(1, tgl)), r(1, sites(2, tgl)))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if(v1.le.e.or.v2.le.e.or.v3 ie.e) then
if(v1.le.e.ond.v2.le.e.and.v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  poick tpeugolxhika b kotopyj popadaet to-ka np
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subroutine search (tgl, np, ok, mk, r, next, sites)
                                                                                                                                                                                                                                                                                                                                          if (mk.gt.0) then
nl=next (m0,n0)
if (next (1,n1), ne.n0) stop 33
call flip(n1,1,next, sites,r)
call circle(n0,r,sites,radlus,center)
endif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ok-.false.
ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ,el~le-10)
integer tgl,m,np,prev,ndp/0/
common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Integer next (3,1), sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1f(v2.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ok=.true.
end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ok. false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   udb=udb+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1f(vl.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mk-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ok .. false.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  parameter (e-le-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           return
                                                                                                                                                                             sites (1, tra) =st
sites (2, tra) =st3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 endl[
                                                                        stl =sites(1,trl)
                                                                                           st2msites(2, trl)
st3msites(3, trl)
                                                                                                                                                                                                                      :.!tes (3, tra) -stl
                                                                                                                                                                                                                                        sites(1,trb)=st
sites(2,trb)=stl
                                                                                                                                                                                                                                                                                 sites (3, trb) -st2
           next (2, trb) -tr]
                                 next (3, trb) -tra
                                                                                                                                                          sites(l,trl)-st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vl *abs (al)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      v2-abs (a2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         v3-abs (a3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           logical ok
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mpr-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subroutine bar(trl, st, mk, r, next, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to-ka 'st' pomelaetcq b tp-x 'trl' ppl pomo)l bapicehtpl-eckogo podpazdelehiq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               real radius(1), center(2,1)
integer np,trl,tr2,tr3,tra,trb,st,st1,st2,st3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         call circle(1jk, r, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                    next (1, j0) "mod (j0, nbndp) +1
next (2, j0) =mod (j0+nbndp-2, nbndp) +1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               r3-rark(tr3,tr1,next)
'tra' 1 'trb' - dba Pobyx tpeugolxhika
                                                                                                                                                                                                                                                                                               r(1, nst) =rbnd*cos(p* 10/nbndp) + .5
r(2, nst) =rbnd*sin(p* 10/nbndp) + .5
                                                                                                                                                                                                                                                                                                                                                         sites(1, j0) =nst
sites(2, j0) =nst0+mod(j0, nbndp)+1
sites(3, j0)=1
parameter (nbndp-11, rbnd-10.)
                                                                                   integer next(3,1), sites(3,1) real radius(1), center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : ((tr2.ne.0) next (m2, tr2) -tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ((tr3.ne.0) next (m3,tr3) -trb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          integer next (3, 1), sites (3, 1)
                                         common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mo-mark (no, trl, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -2-mark (t.r2, t.r1, nevt.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1f(mx.gt.0) then
nO-next(mk,trl)
                                                                                                                                                                                                           astOwnst
do 10 jo=1,nbndp
ntr=ntr+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
do 20 ljk-l,nbndp
                                                                                                                                                                                                                                                                                                                                      r(3, nst) -0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                               next (3, 30) -0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tr2-next (2, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tr3-rext (3, tr1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                next (2, trl) "tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    next (3, trl) -trb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             next (1, tra) mtr2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  next (2, tra) *trb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      next (3, tra) -trl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             next (1, trb) =tr3
                                                                                                                                                                    p=atan(1.)*8
ntr=0
                                                                                                                                                                                                                                                                           nst =nst +1
                         integer tgl
                                                                real r (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tro-ntr.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tra-ntr+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242-25 E+2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and! f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        save
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
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1f(v1.le.e.or.v2.le.e.or.v3.le.e) then
1f(v1.le.e.and.v2.le.e.anu.v3.le.e) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pepectpojka pe(etki.
bocctahoblehle tpiahquiqcii delohe
ppi pomoji kpugobogo kpitepiq
common /points/ nst,ntr
                                                                                                                                                               if(v3.le.e) then
                                                                                                                                                                                                                                                                                                                      if(v3.le.e) then
                                                                                                                                                                            ok-.false.
                                                                                                                                                                                                                                                                                                                                 ok . false.
ndp=ndp+1
                                                                                                                                                                                                                                                                                                                                                                                   ok-.true.
endlí
                                                                                                   if (v1.le.e) then
if (v2.le.e) then
ok=.false.
                                                                                                                                                                                        udp-udp+1
                                                                                                                                                                                                                           ok-, true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1f (mk.eq.0) return
kgl-next (mk,tgl)
jl-mark (kgl,tgl,next)
j2-mod (j1,3)+1
                                                                                                                                                                                                                                                                       1f (v2.gt.e) then
                                                                                                                                                                                                                                      end if
                                                                                                                                                                                                                                                                                                                                                                        mk =m2
                                                                                                                                          ndp-ndp+1
                                                                                                                                                                                                              mk-m1
                                                                                                                                                                                                                                                                                                 ok-.true.
                                                                  ok. false.
                                                                                                                                                                                                                                                  end if
                                                                              ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                        endif
                                                                                                                                                                                                   else
                                                                                                                                                                                                                                                                                    mk-m3
                                                                                           endif
                                                                                                                                                     else
                                                                                                                                                                                                                                                                                                                                                                                                                     end1f
                                                                                                                                                                                                                                                                                                            else
                                                                                                                                                                                                                                                                                                                                                                                                                                              ok-.true.
      vl-abs(al)
                    v2=abs (a0)
                              v3-abs (a3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    end 1f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      m2=mark(tgl.prev,next)
m3=mod(m2,3)*1
r:=mod(m3,3)*1
a3=volum(r(i,mp),r(l,sites(ml,tgl)),r(l,sites(m2,tgl)))
a1=volum(r(i,rp),r(l,sites(m2,tgl)),r(l,sites(m3,tgl)))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \...\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , --- ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f(<0.gt.ntr ) then
print ',' ---> triangle not found
write(8,')'fatal error'
                                              if(v3.le.e) then
ok*,false.
                                                                         ndp-ndp+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              print *, " ---> fatal error
1f (v2.gt.e) then
                                                                                            mk-2
ox-.true.
endif
                        ok-.true,
                                                                                                                        enc
end! f
end! f
                                                                                    else
                                                                                                                                                                                                                  1f(a2.1t.a3) then
1f(a1.1t.a2) then
                                                                                                                                                                                                                                                                                                                         if(al.lt.a3) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1f(a.lt.0) goto 1610
                                     el se
                                                                                                                                                                     ok-,true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1f(al.it.a3) then m=ml
                                                                                                                                                                                 end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgl =next (m, tgl)
                                                                                                                                                                                                                                                                                                    end if
                                                                                                                                                                                                                                                                                                                                                                                                    end 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ndp=ndp+l
ok=.false.
return
                                                                                                                                                                                                                                                      0.0
                                                                                                                                                                                                                                                                                        3 -32
                                                                                                                                                                                                                                                                                                                                                    3 ~ 3 }
                                                                                                                                                                                                                                                                                                                                                                                       a-a3
                                                                                                                                                                                                                                           R
E
                                                                                                                                                                                                                                                                             3-E
                                                                                                                                                                                                                                                                                                                                                                           343
                                                                                                                                                                                                                                                                                                                                         Ē
                                                                                                                                                                                             return
                                                                                                                                                                                                        end 1f
                                                                                                                                                                                                                                                                                                                                                                                                              end :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fi pue
                                                                                                                                                                                                                                                                                                                                                                 e;se
                                                                                                                                                                                                                                                                  0.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                .313 prev-tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a-a!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a-a3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a0+a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40-40+1
                                                                                                                                                                                                                                                                                                                else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e;se
```

```
subroutine recon(tg), r, next, sites, radius, center)
                                                                                                                                                                             Integer next(3,1), sites(3,1)
real radius(1), center(2,1)
```

triang.f

```
b(1) = (pp(r(1, st 2)) +pp(r(2, st 2)) -pp(r(1, st 1)) -pp(r(2, st 1)))/2
b(2) = (pp(r(1, st 3)) +pp(r(2, st 3)) -pp(r(1, st 1)) -pp(r(2, st 1)))/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 next (mark (next (ma2, tga), tgc next), next (ma2, tga)) "tgb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                next (mark (next (mb2, tgb), tgb, next), next (mb2, tgb)) "tga
                                                                                                                                                                                    c call vector(r, sites (mal, tqa), sites (mbl, tqb), 5, 4)
cif (nst.lt.5) call sleep(1)
c call vector(r, sites (mal, tqa), sites (mbl, tqb), ll, 7)
c call vector(r, sites (mal, tqa), sites (mal, tqa), ll, 7)
c call vector(r, sites (mb), tqb), sites (mal, tqa), ll, 7)
c call vector(r, sites (mb), tqb), sites (mbl, tqb), ll, 7)
c call vector(r, sites (mb), tqb), sites (mbl, tqb), ll, 7)
                                                                                                                                                               call vector(r, sites (ma2, tga), sites (ma3, tga), 4, 13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    by-iclg'teg koopdihaty centpa i padiuc okpuvhocti, opicahhoj bokpug tp-ka tgi
                                                                                                          call vector(r, sites (ma2, tga), sites (ma3, tga), 5, 4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subroutine circle(tgl,r,sites,radius,center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           center(1,tg1) = (a(2,2)*b(1) = a(1,2)*b(2))/det
center(2,tg1) = {a(1,1)*b(2) = a(2,1)*b(1)}/det
radius(tg1)=pp(r(1,st1)-center(1,tg1))
                                                                                                                                          call sleep(1)
                                                                                                                                                                                                                                                                                                                                                                                            call sleep(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     det "a (1, 1) *a (2, 2) -a (2, 1) *a (1, 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sites (ma3, tga) =sites (mbl, tgb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sites (ma3, tgb) -sites (mb2, tgb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sites (mal, tgb) -sites (mal, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sites (ma2, tgb) -sites (ma3, tga)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   if (next (ma2, tga).ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      If (next (mb2, tgb) .ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              next (mal, tgb) =next (mb3, tgb)
next (m.2, tgb) =next (ma2, tga)
next (ma2, tga) =tgb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        next (mal, tga) =next (mb2, tgb)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    real radius(1), center(2,1)
Integer tgl, stl, st2, st3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         real*8 a(2,2),b(2),det,pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a(1,1)-r(1,st2)-r(1,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a(1,2)=r(2,st2)-r(2,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a(2,1)=r(1,st3)-r(1,st1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a (2, 2) -r (2, st 3) -r (2, st 1)
mbl =mark (tgb, tga, next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Integer sites (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   next (ma3, tgb) "tga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stlmsites(1,tgl)
st2msites(2,tgl)
st3msites(3,tgl)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pp(x) -dprod(x,x)
                                                                                                                                          1f (nst.1t.5)
                                                                                                                                                                                                                                                                                                                                                                                            1f (nst.1t.5)
                          mb2-sh1 (mb1)
                                                     mb3-sh1 (mb2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                return
                                                                                  . film
                                                                                                                                                                                                                                                                                                                                                                                                                         . [1]m
                                                                                                                                                                                            if(sites(l,nxt).ne.sites(l,tgl)) then
print ',' """ "next" and "sites" are in disaccord <=""
print ',' """ [atal error</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               popadaet 11 to-ka st b okpuvhoctx, opicahhu' bokpug tp-ka tg ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , . . . v
                                                                                                                                                                                                                                                                                                                                                                                              call circle (ngb, r, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                 if(.not.criter(ngb,sites(l,tql),r,radius,center)) then
call flip(nxt,l,next,sites,r)
goto 1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                can't constract triangulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    !f(scal(r(l,st),center(l,tg)).lt.radius(tg)) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             logical function criter(tg, st, r, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      call circle (nxt, r, sites, radius, center)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subroutine (11p(tga,mal,next,sites,r)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ecll pupadaet, to criter = .false.
                                                                                                                                                                                                                                                                                                       write (8, .) "fatal error"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           write(8,*)' fatal error'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /points/ nst.ntr
integer next(3,1),sites(3,1)
integer tga,tgb,shl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  real radius(1), center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ppobepka kpugobogo kpitep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             if (mxt.ne.tgl) goto 1010
integer tgl,nxt,ngb,stp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      if(stp.gt.3*nst) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ^= -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :f(tg.eq.0) stop 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    criter .. false.
                                                                                                                                                                                               if (ngb.ne.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    criter .. true.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             : - (E, 'E) - LOU (E, 3) -:
                                                                                                                                                                    ngb-next (1, nxt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nxt -next (2, nxt)
                       logical criter
                                                                                                                                                                                                                                                                                                                                         stop 41
                                                                                                                                                                                                                                                                                                                                                                 end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 integer tg, st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   print.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        202020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 end !!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     end 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           real: (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              stp-stp+1
                                                                                                               nxt-tq]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 return
                                                                                                                                          stp=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          real
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e!se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5376
                                                                                                                                                                  1010
```

+pp(r(2, st1) -center(2, tg1))

1f(tga.eq.0) stop 45

tgb-next (mal, tga)

-a2-sh1 (mal)

triang.f

- }

```
write (7, *) sites(1, 32), sites(2, 32), sites(3, 32)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     print *,' radius of confidence =', sqrt (rdmax)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1f(r(1,m1).1t.0.or.r(1,m1).gt.1) goto 30
1f(r(2,m1).1t.0.or.r(2,m1).gt.1) goto 30
1f(r(1,m2).1t.0.or.r(1,m2).gt.1) goto 30
                                                                                                                                                                                                                                                                        write (2) ntr,nst
write (2) ((sites(10,x0),10=1,3),x0=1,ntr)
write (2) ((next(10,x0),10=1,3),x0=1,ntr)
if(lhardco .eq.1) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                             subroutine detrad (rdmax, radius, radv, lord)
             write (7,*) r(1, 32).r(2, 32),r(3, 32)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     if (radius (12).gt.5.) goto 30
                                                                                                                                                                                                                                                         if (madst.eq.0.and.isu.eq.1) return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       definition of radius of confidence
                                                                                                                                                                                                                                                                                                                                                            call hardcopy (r, sites, filename)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  call xb07a(radv,nnt,lord)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            write(10,*) 'limits 0 1 0 1'
write(10,*) 'iweight 3'
write(10,*) 'ptype 10 3'
write(10,*) 'erase'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mm(1+1), nt,
                                                 write (7, *) rl, rl, r (3, 32)
                                                                                                              write(7,*)rl,rl,r(3, 52)
end lf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subroutine hardcopy (r, sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          radv (12) -radius (12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mm(1), nt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            common /points/ nst,ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mm(1) =mod(1,3)+1
open(10,file='hardtmp')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1f (ml.lt.m2) goto 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          real radv(1', lord(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 30 12-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Integer sites (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nnt =nnt +1
                                                                                                                                                                           do 710 13-1, ntr7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  continue
                                                                                                                                                                                              12-10rd (13)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rr*rr+radv (ktr)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     real radius(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   do 10 ktr-l,nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rdmax-rr/nt *10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   real x(3),y(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              do 10 nt-1, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 do 30 1-1,3
                                                                        end if
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ml=sites(
                                                                                                                                                                                                                                        continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rdmax=rr/nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             real r(3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           m2-sites(
                                                                                                                                                        cont Inue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nt-nnt * . 9
                                                                                                 else
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nnt-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             continue
                                                                                                                                                                                                                                                                                                                                                                             end 1f
                                                                                                                                                                                                                                                                                                                                                                                                    return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rr=0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30
                                                                                                                                                                                                                                    710
                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           common /![der/ ifo,isu,nmi0,xmax,xmin,ymax,ymin,zmax,zmin,grid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    madst, rdmax0, ldra, lwin, ldrm, msav, ilg, miner, kva
                                                                                                                                                                                                                                                                                      volum=dprod (y(1)-x(1), z(2)-x(2))-dprod (y(2)-x(2), z(1)-x(1))
                                                                              scal -dprod (x(1)-y(1),x(1)-y(1))+dprod (x(2)-y(2),x(2)-y(2))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         `...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , .... V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                do 10 32=1,nst
1f(r(1,32) .ge. 0.0 .and. r(1,32).le. 1.0) then
1f(r(2,32) .ge. 0.0 .and. r(2,32).le. 1.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subroutine output (r, next, sites, radius, lord, Ihardco)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      oppedelehle oplehtacil b tp-ke trl po tp-ku tr2 If(trl.eq.0) then
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         if(!trame(sites(1,nt),t)) goto 20
if(!trame(sites(2,nt),t)) goto 20
if(!trame(sites(3,nt),t)) goto 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    """> "next" is in disaccord
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bybod dlq bizualizaci! i inteppolqcii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            if (next (mark, trl) .eq.tr2) return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       """
write(8,")'fatal error
                                                                                                                                                                                                                                                                                                                                                                      integer function mark(tri,tr2,next)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    if (radius (nt), gt. rdmax) goto 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      integer next(3,1), sites(3,1) real radius(1), center(2,1)
                                                                                                                                                                real function volum(x,y,z)
real function scal(x,y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  common /points/ ast, ntr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , 1p! x, 1pog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 continue
write (7,*) ntr7,nst
                                                                                                                                                                                                                                              real x(2), y(2), z(2)
                                                                                                                                                                                                      ploladx co zhakom
                                                                                                                                                                                                                              volume = {y-x,z-x}
                                                                                                                                                                                                                                                                                                                                                                                                              integer next (3, 1)
                                                                                                                                                                                                                                                                                                                                                                                             Integer trl, tr2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     integer lord(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7. .Oxempi=xempi
                                                              real x(2),y(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         do 10 mark-1,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 20 nt+1, nt r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ogical frame
                                  scal = (x, y)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tord (nt r7) -nt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       real : (3,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nt r7-nt r7+1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  print .,'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mark-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        end 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         print .,
                                                                                                      return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               stop 51
                                                                                                                                                                                                                                                                                                             return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2557+0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
```

30

:

```
dist = dist + (r(2, np) = r(2, s,tes(k,tgl))) •• 2
if(k.eq.i) then
dmin-dist
                                                                                                                                kmin-1
else if (dist.it.dmin) then
kmin-x
dmin-dist
endif
                                                                                                                                                                                                                                                                                                                                                                  continue
if(dmin.gt.rad) kmin=-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           end
                                                                                                                                                                                                                                                                                                                                                                  40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (r(l,np) - r(l, sites(k, tgl))) ** 2
if(r(2,m2).lt.0.or.r(2,m2).gt.1) goto 30
write(10,*)'relocate',r(2,m1),r(1,m1)
write(10,*)'draw',r(2,m2),r(1,m2)
continue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cirin=abs (circle (1, nt) -. 5) . lt..6
cirin=cirin.and. (abs (circle (2, nt) -. 5) . lt..6)
return
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       suprouting distance(r,sitos,np,tgl,rad,kmin)
real r(3,1),min
integer sites(3,1)
integer tgl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               logical 'unction bad(n, rmin, radius, center)
parameter (rvmin=1e-8, rvmax=0.7)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              logical function border (n.r. sites, radius)
parameter (rvmin=le=8, rvmax=0.7)
logical frame
logical frame
reger sites (3,1)
real r(3,1), radius(1)
begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               logical function cirin( nt, circle ) real circle(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Corder | C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Togical cirin
real radius(1), center(2,1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bad-radius(n).lt.rmin
If(bad) return
bad-radius(n).ge.rwmax
If(bad) return
circle inside?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             end function cirin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      return
end function
end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     do 40 k = 1,3
dist =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            begin cirin
                                                                                                                                                                         continue
close(10)
return
end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                begin
```

:

:

cpath.h
define PATH "/usr/people/lila/

Н

'define PATH "/usr/people/11la/FILM/" 'define PLACE "< triang 4"

event.h

· External interface and defines to input-queue event handling event.h routines.

Written by Wade Olsen for Silicon Graphics, Inc.

The event handler understands two kinds of things; events and updates. Events are reactions to things occuring in the input queue. Updates are functions that should be called whenever there is nothing waiting in the input queue, and may be active or inactive. If there are no active updates and nothing in the input queue, then event() will block, using up no CPU time.

are used to identify which event to look for. The first argument is the window (gld) the event must happen in, if this value is ANY then any window will do. The second argument is the device to look for (e.g. RIGHTHOUSE or REDAM or KEYBD, etc). Again, if it is ANY then any device will match. The third argument is the value the device must generate (e.g. DOWN or UP); ANY means all values ratch. The last two arguments are what should be done when an event is generated. The fourth argument is a function to be called, and the fifth is an argument that should be supplied to the function. In addition, the value generated by the device will also be passed to the function when it is called. The first three arguments add event is used to look for events.

for example,

add_event(winget(), RIGHTMOUSE, DOWN, dopup, my_menus); qdevice(RIGHTMOUSE);

will make a pop-up menu appear when the right mousebutton goes down. Note that you must do the qdevice () call yourself.

old add_event(int, int, int, vold (*fn) (vold *, int), char *);

An update is like an event, only simpler. The first argument is a pointer to an integer flag specifying whether or not this update function is active. The second is a function to be called when it is active, and the last is an argument to be supplied to the

old add_update(int *, void (*fn) (void *), char *);

Finally, when all updates and events have been added, repeatedly call event() to handle them -- something like

while (quitfiag == FALSE) event ();

You should have previously added an event that sets quitflag to

TAUE, of course.

oid event (vold) ;

These are some useful defines for the possible values buttons can generate.

~ ° tefine UP teffine ANY

And a few external variab.es you might find useful

extern int context, state, device;

```
0.2 /* absolute edge of panel left blank */
0.2 /* absolute dist tween actuators */
0.1 /* absolute dist to a label */
0.05 /* a tiny little distance */
0.025 /* half of THAF! */
PNL_DIM_3
                                                                                                                                                                                                                                                                                                                                                     50.0 /* used to size the panel */
35.0 /* ppu below this, draw chars as rects */
0.5 /* smallest change to cause recalc */
                                                                                                                               /* max number of panels + actuators */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 /* Pixels for meter pointer and bar line */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (4.0-PNL_DIM_1)
(1.0-PNL_DIM_1)
(1.0-PNL_DIM_1)
(1.0-PNL_DIM_1)
10.0 /* units per full range output */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / default length in characters */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (6.0-PNL_DIM_1) /* w/o label */
                                                 /* from math.h */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1.0-PNL_DIM_1)
(0.05*PNL_SLIDER_HEIGHT)
                                                                                                     (0.31830988618379067154*180.0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (0.5-0.5*PNL_DIM_1)
(2.0-PNL_DIM_1)
PNL_BUTTON_EDGE
40_/* default length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PNL_TYPEIN_LENGTH
                                                                                                                                                                                                                                                                                                    (PNL_CF /ICE_OFFSET+0)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2.0-PNL_DIM_1)
(3.0-PNL_DIM_1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (2.0*PNL_DIM_1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2.0-PNL_DIM_1)
(4.0-PNL_DIM_1)
                                                                                                                                                                                                                                                                          (MAXSGIDEVICE+1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THE POLT_SLIDER_WIDTH

THE POLT_SLIDER_BAR_HEIGHT

THE POLT_SLIDER_BAR_HEIGHT

THE POLT_STATE

                                              3.14159265358979323846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TO POL TYPEOUT MAX COLUMNS 256

TO POL SCROLLBAR WIDTH (2.0°P)

TO POL TYPEOUT ARROW HEIGHT (P.0°P)

TO POL PUCK EDGE (1.0°P)

TO POL PUCK EDGE (1.0°P)

TO POL FLOATING PUCK EDGE (1.0°P)

TO POL EDGE LINEWIDTH (1.0°P)

TO POL STRIP HEIGHT (2.0°P)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               define PNL_SCREEN_BORDER
define PNL_TITLE_BAR_HEIGHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              define PNL_SCREEN_BORDER
                                                                                                                                                                                                                   20000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   define PNL_CHAR_PIXEL_HEIGHT
                                                                                                                                  4096
                                                                                                                                                                                                                                                                                                                                                             define PNL_PIXELS_PER_UNIT
                                                                                                                                                                                                                                                                                                                                                                                     define PNL_CHAR_THRESHOLD
                                                                                                                                                                                                                                                                       define PNL_DEVICE_OFFSET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNL_SLIDER_HEIGHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /* actuator dimensions */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   define PNL_BEVEL_WIDTH
                                                                                                     define PNL_RAD_TO DEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               / panel dimensions */
                                                                                                                                                                                         MAXSGIDEVICE
MAXSGIDEVICE
                                                                                                                                                                                                                                             MAXSGIDEVICE
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PNL DIM 2
PNL DIM 3
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                       #ifndef Pi
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                    This software is in the public domain, it may now be resold or reliconsed. Modified and enhanced versions of this software are likewise to be made freely available. Sites using this software are requested to register with NASA at the address below. Send modifications and requests for most recent version to:
                                                                                                                                                                                                                                                                       NASA Ames Research Center
Moffett Fleld, CA 94035
                                                                                                                                                                                                                                                                                                                                                                                       dat@orville.nas.nasa.gov
                                                                                                                                                                                                                        ATTN: Panel Library
                                                                                                                                                                                           David A. Tristram
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "ar *calloc(unsigned, unsigned);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nt write(int, char *, unsigned);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .fndef PNL_INIT
sefine PNL_INIT(x) /* nothing */
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                                                                                                                                                                                                                                                                                                                                                             41 5-694-4404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :fdef [RIS_40
ong lseek(Int, long, int);
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : Indef PNL_EXTERN
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                                                                                                                                                                                                 Author:
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/* these three mutually exclusive */
                                                                                                                                                                                                                                                               /* these three mutually exclusive */
                                                                                                                                                                                                                                                                                                       /* these two mutually exclusive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /* label placement (anti-clockwise from right) */
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                                                                                                                                                                       #define PNL_CM_NORMAL Ox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THE FOLL LABEL RICHT TOP

THE POLL LABEL UPPER RIGHT

THE POLL LABEL TOP RIGHT

THE POLL LABEL TOP LEFT

THE POLL LABEL UPPER LEFT

THE POLL LABEL LEFT
                                                                                                                                                                                                                                                               PNL_MSM_FREE
PNL_MSM_ORDERED
PNL_MSM_CONSTRAINED
PNL_MSM_ADD
PNL_MSM_DELETE
                                                                                                                                                                      define PNL_SM_NORMAL
define PNL_SM_DIFFERENTIAL
define PNL_SM_FINE_CONTROL
define PNL_SM_NOSNAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        define PNL_FM_FREE
define PNL_FM_FIXED
define PNL_FM_FIXED_SIZE
                                                                                                                                                                                                                                                                                                                                                                                                                                         define PNL_TOM_NORMAL
define PNL_TOM_NOCURSOR
define PNL_TOM_NOREGION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            define PNL_LABEL_RIGHT
                                                                                                                                                                                                                                        / * multislider modes */
                     PNL_MENU_ITEM
PNL_ICON
PNL_ICON_MENU
PNL_SUB_MENU
                                                                                                                                                                                                                                                                                                                                                                         define PNL_IM_STOWED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /* drawing styles */
                                                                                                                                                                                                                                                                                                                                                                                                                 /* typeout modes */
                                                                                         PNL_CYCLE
PNL_SCROLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         define PNL_OPEN
                                                                                                                                              /. slider modes ./
                                                                                                                      PNL MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /* frame modes */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /* cycle modes */
                                                                                                                                                                                                                                                                                                                                               /* icon modes */
                                                                                                                                                                                                                                                                                            define i
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                                                                                                                                                                                                                                        /* user types start here+1 */
/* first user actuator */
                                                    (1.5-PNL_DIM_1)
(2.0-PNL_DIM_1)
(1.0-PNL_DIM_1)
0.88 /* revs per full range output */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL_MULTISLIDER_BAR
FNL_MULTISLIDER_OPEN_BAR
98
99
                                                                                                                   PNL WIDS BUTTON WIDTH PNL WIDE BUITON HEIGHT (2.0-PNL DIM 1) (0.5-PNL DIM 1) (4.0-PNL DIM 1) (6.0-PNL DIM 1)
                                                                                                                                                                                                                                                                                                                                    PNL_FILLED_SLIDER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
70
80
90
PNL_MULTISLIDER
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321
322
                                                                                                                                                                                                                                                                                            PNL_SLIDER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNL_METER
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0x80000
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TO BUT TOWN ARROW BUTTON
TO BUT ARROW BUTTON
TO BOUBLE ARROW BUTTON
TO BOUBLE ARROW BUTTON
TO BOUN DOUBLE ARROW BUTTON
TO BOWN DOUBLE ARROW BUTTON
                                   define PNL STRIP CHART NFTS

define PNL SLIDEROID HEIGHT (1.5

define PNL DIAL EDGE (1.0

define PNL DIAL ENGE (1.0)

define PNL DIAL WINDS

define PNL MULTISLIDER DIVISIONS S

define PNL MULTISLIDER DIVISIONS S

define PNL MENU WIDTH PNL

define PNL TCON WIDTH (2.0)

define PNL SCROLL WIDTH (4.0)

define PNL SCROLL WIDTH (4.0)
                           200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e PNL_WUITISLIDER
90
e PNL_VMULTISLIDER
PNL.
e PNL_HMULTISLIDER
91
e PNL_MULTISLIDER_BAR
e PNL_WULTISLIDER_BAR
e PNL_VMULTISLIDER_BAR
e PNL_VMULTISLIDER_BAR
e PNL_WULTISLIDER_BAR
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e PNL_HMULTISLIDER_BAR
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                                                                                                                                                                                                                                                                                                                                                                                                                                           PNL_SHADOW BUTTON
PNL_LEFT ARROW BUTTON
PNL_RIGHT ARROW BUTTON
                           define PNL_STRIP_LINEWIDTH
                                                                                                                                                                                                                                                                                                                         PNL_FILLED_SLIDER
PNL_FILLED_VSLIDER
PNL_FILLED_HSLIDER
PNL_FILLED_HSLIDER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNL UP ARROW BUTTON
                                                                                                                                                                                                                                                                                                                                                             PNL_DVSLIDER
PNL_DHSLIDER
PNL_BUTTON
PNL_TOGGLE_BUTTON
PNL_RADIO_BUTTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P PNL TYPEIN
P PNL LABEL
P NL TYPEOUT
P PNL METER
P PNL ANALOG BAR
P NL STRIP CHART
P NL SCALE CHART
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL FLOATING PUCK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNL_RUBBER_PUCK
PNL_SLIDEROID
                                                                                                                                                                                                                                                       PNL_USER_OFFSET
                                                                                                                                                                                                                   . Actuator types . "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PNL_PALETTE
                                                                                                                                                                                                                                                                                                PNL_VSLIDER
PNL_HSLIDER
                                                                                                                                                                                                                                                                                   PNL SLIDER
                                                                                                                                                                                                                                             PNL MAXACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PNL PUCK
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panel.h

endif PNL_EDITOR_PARSING

[.] mouse action sources ./

panel.h

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                                                                                                                                                                                                                                                                                                                                                                                            /* function modes, ie, the context an actuator's function is called in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNL_HITRECT((wx), (wy),

(a) ->x-PNL_BEVEL_HIDTH,

(a) ->x+(a) ->x+(b) ->x+(b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /* dopanel return modes, global control over dopanel return values */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (x) > (x) (x) (x) (x) (x) (x) (y) (y) (y) (y) (y)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #define PNL_VAL_TO_WORLD(val, min, max, dist)
(((val) - (min)) / ((max) - (min)) * (dist))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #define PNL WORLD_TO_VAL(x, min, max, dist)
((x)/(dist)*((max)=(min))*(min))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ((a)>0.02(a):-(a))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ((a) < (b) ? (a) : (b) )
((a) > (b) ? (a) : (b))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #define PNL_ACCESS(type, ptr, member)
#define PNL_MKUSERACT(struct_type, type)
{{struct_type *}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #define PNL_HITRECT(x,y,xl,yl,x2,y2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (b2): (a)));
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (C((a):(lq)
                                                                                                                                                                                                0xabc0
0xabc1
                                                                                                                                                                                                define PNL_MT_STATE Oxabco
define PNL_MT_MOUSE Oxabci
define PNL_MT_DELAY 0xabc2
idefine PNL_MT_ENDBLOCK 0xabc3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Idefine PNL_DRM_RETURN_NULL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ((a)>(b2)?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ((a) > (b)) ?
                                                                                                                      /* script message types */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /* structure references */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -- C C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          define PNL FCNM NONE

define PNL FCNM DOWN

define PNL FCNM ACTIVE

define PNL FCNM UP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #define RANGE(a, bl, b2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ((a)<(b2)?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ((a) > (c))
                                 define PNL_SRC_SCRIPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (P)
   define PNL_SRC_QUEUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /* math relations */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ((b1)<(b2)?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   idefine MIN(a, b)
idefine MAX(a, b)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (a->beveled?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (define ABS(a)
                                                                                                                                                                                                                                            / no offset, actually quite abnormal */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /* RGB triples */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /* map indices */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PNL INIT (0);
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WHITE
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define PNL_12BIT_BREVEL_LIGHT_COLOR
define PNL_12BIT_NORMAL_COLOR
define PNL_12BIT_OTHER_COLOR
define PNL_12BIT_OTHER_COLOR
define PNL_12BIT_OTHER_COLOR
define PNL_12BIT_HENEL_DARK
define PNL_12BIT_LABEL_COLOR
define PNL_12BIT_LABEL_COLOR
define PNL_12BIT_LABEL_COLOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           define PNL 8BIT WHITE COLOR
define PNL 8BIT BEVEL LIGHT COLOR
define PNL 8BIT NORMAL COLOR
define PNL 8BIT DACKGROUND COLOR
define PNL 8BIT BACKGROUND COLOR
define PNL 8BIT BEVEL DARK COLOR
define PNL 8BIT BEVEL DARK COLOR
define PNL 8BIT LABEL COLOR
define PNL 8BIT LABEL COLOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        define PNL 481T WHITE COLOR
define PNL 481T NORMAL COLOR
define PNL 481T NORMAL COLOR
define PNL 481T BACKGROUND COLOR
define PNL 481T BACKGROUND COLOR
define PNL 481T BEVEL DARK COLOR
define PNL 481T BEVEL DARK COLOR
define PNL 481T BEVEL DARK COLOR
define PNL 481T BEVEL COLOR
define PNL 481T BEVEL COLOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              define PNL_RGB_WHITE_COLOR
define PNL_RGB_FEEL_LIGHT_COLOR
define PNL_RGB_ORMAL_COLOR
define PNL_RGB_OTHER_COLOR
define PNL_RGB_HAGROUND_COLOR
define PNL_RGB_HAGRILGHT_COLOR
define PNL_RGB_HABEL_COLOR
define PNL_RGB_LABEL_COLOR
define PNL_RGB_LABEL_COLOR
define PNL_RGB_LABEL_COLOR
           112113
define PNL LABEL BOTTOM LEFT of define PNL LABEL BOTTOM RIGHT of define PNL LABEL BOTTOM RIGHT of define PNL LABEL RIGHT of define PNL LABEL CENTER of define PNL LABEL NORMAL
                                                                                                                                                                                                                                                                                                                             Idefine PNL_MAX_LABEL_TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mouse action sources ./
                                                                                                                                                                                                                                                                                                                                                                                                               /* colors */
```

#endif PNL_EDITOR_PARSING

panel.h

```
/* eventually change name to Panel? */
                                                                                                                                                                                                                         typedef struct {
   Actuator "vslider, "hslider;
   Actuator "frame, "subframe;
                                                                                                                               Actuator 'shiftrightbutton;
Actuator 'frame;
                                                                                                                Actuator *shiftleftbutton;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL_EXTERN Panel 'pnl_cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PNL_EXTERN Alist 'pnl_kl
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PNL_EXTERN Panel 'pnl_pl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PNL_EXTERN int pnl_delay
                                                                                                                                                                                                                                                                                                                                                       PNL_EXTERN int pnl_id
                                                                             typedef struct (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNL_EXTERN Panel
                                                                                                                                                                                                                                                                                                                     /. sledolp ./
                                                                                              int mode;
                                                                                                                                                                                                                                                                                  Scroll;
                                                                                                                                                                                                                                                               first char to display (appears in upper-left) '/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /* offset for drawing, allows scrolling */
,* bounding box enclosing all actuators and labels */
                                         /* the init function for the slider bar act */
                                                                                                                                                                                                                                                                               /* insertion point */
/* other end of selection region */
/* width and height in character positions
/* number of chars in buffer */
/* buffer size */
/* character dimensions */
                                                                                                                                                                                                                                              auto 'word' eelction delimiters '/
                                                                                                                                                                                                                              text to be displayed ./
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coord xstowed, ystowed, wstowed, httowed;
Coord xopen, yopen, wopen, hopen;
char *labelsave;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  / title helght '/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   float *resettarget, resetval;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Boolean finemode, resetmode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pedef Slider Palette;
                                         vold (*acttype)();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                float finefactor;
float valsave;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coord offx, offy;
                                                                                                                                                                                                                                                                                                                                                                            Cd.
                                                                                                                                                                                                                                                                                                                                                                                                                                 pedef Point Puck;
                                                                                              ypedef struct (
char 'str;
int len;
                                                                                                                                                                                                                             cha: 'buf;
char 'delimstr;
                                                                                                                                                                                                                                                                                                                                        int len;
int size;
Coord ch, cw, c
                                                                                                                                                                                          /pedef struct (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sedef struct ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pedef struct (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pedef struct (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /bedef struct (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pedef struct {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (loat valsave;
                                                                                                                                                                                                                                                                                  int dot;
int mark;
int col, lin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /pedef struct
                                                            Multislider;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coord wsave;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Coord wsave;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         float winds;
Dial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Coord minx;
                                                                                                                                                                                                                                                                 int start;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coord maxx;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coord maxy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Soord miny;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Slideroid;
                                                                                                                                                                                                             int mode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               int mode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .nt mode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          int rode;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        int mode;
panel.h
                                                                                                                                                                                                                                                                                                                                                                                             Typeout;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Coord x;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coord y;
                                                                                                                                                      Typein;
```

```
PNL_INIT(0); /* frames '21, next message allowed from the queur '/
                                                                                                                                                                                                                                                                                                                                                                                                              PNL_EXTERN char *pnl_table(PNL_TAB.6. S12E);
/* table of pointers to all panels and actuators */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PNL_EXTERN Screencoord pnl_mx, pnl_my;
PNL_EXTERN Ccord pnl_x, pnl_y; /* screen coords if outside a panel */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PNL INIT(NULL);
|/* a list of actuators with key equivalents */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PNL_EXTERN Actuator *pnl_ca PNL_INIT(NULL); // / actuator being moused (current actuator) */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PNL_EXTERN Boolean pol_delayvirgin PNL_INIT(TRUE); /* flag p:events wri'ing initial deliy token
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNL_EXTERN Boolean pnl_cp_active_save PNL_INIT(FALSE);
/* state_of active fleid in pnl_cp_save */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PNI_CXTERN Boolean pnl_ca_active_save PNL_INIT(FALSE);
/* state_of active field in pnl_ca_save
                                                                                                                                                                                                                                                                                                                                               / an incrementing index into the table
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   / panel being moused (current panel)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL_EXTERN long int pnl_frame_number PNL_INIT(0);
/* frames since last delay message
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PNL_INIT(NULL);
|/* list of all control panels */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL_EXTERN Actuator 'pnl mouse act PNL_INIT(NULL);
7. the mouse cituator, If any '/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNI_INIT(FALSE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PNL_INIT (NULL);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *pnl_cp_save PNL_INIT(NULL); /* last cp_from queue */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNi_EXTERN Actuator 'pnl_ca_save PNL_inii
/' last ca from queue ''
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PNL_INIT (NULL);
                                                                                                                                                                                                                                                                                                                 PNL_INIT(0);
Alist *memberlist, *currentmember;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PNL_EXTERN Boolean pnl_readscript
```

```
/* panel library utilities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /* function declarations
                                                                                                                                                                                                                                                                                                                                                               :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vold 'pnl_alloc(int);
                                                                                                                                                                                                                                                                                                                                                           " fine diagonals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Actuator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Actuator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               void 'pnl alloc();
endif IRIS_4D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Boolean
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Boolean
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         vold *alloc(int);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /* user functions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       short
vold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PNL EXTERN Panel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pane!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               short
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 vold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        void
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fifdef IRIS 4D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       else IRIS 4D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Vold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      void *alloc();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ifdef IRIS_4D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNL_EXTERN 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNL_EXTERN P
PNL_EXTERN A
PNL_EXTERN V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNL_EXTERN V
PNL_EXTERN S
PNL_EXTERN S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PNL_EXTERN
                                                                                                                                                                                                                                                                                                                        #11def 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        / did of (user's) window when dopanel() is called ./
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ...EXTERN int pml_dopanel_return.mode PNL_INIT(PNL DRM RETURN PNL_CA).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .aveuser; edraw PML_INIT(FALSE);
/* If the user is using them, requeue them */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                eveled PNL_INIT(TRUE);
/* Global control for disabling drawing bevels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .: ExTERN Booless pal_dost_draw FNL_INITIFALSE);
/* don't update panels (to avoid swapbuffers)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /* role of called Jp-, active-, or downfuncs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :_EXTERN Boolean pnl_panel_bell PNL_INII(TRUE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ....EXTERN float pnl_char_threshold PNL_INIT(PNL_CHAR_THRESHOLD)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gnore_delay PNL_INIT(FALSL);
/* Ignore delay packets when reading script
                                                                                                                                                                                                                                                                                                                                          PNL_INIT ("panel.script");
                                                                                                                                                                                                                                                                                                                                                                                                                    PNL_INIT ("panel.s.rlpt");
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNL_INIT (PNL_FCNM NONE);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ontrolkey PPL_INIT(FALSE);
/* true when the control key is down */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "." EXTERN Boolean pol_shiftk ,, PNL INIT(FALSE), /- frue when the shift key is down -/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /* frue when button is (was) down *, /* (according to the queue) */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /* true when button first goes down
                                                                  NL_EXTERN Boolean pnl_writescript PNL_INIT(FALSE); /* true when writing a script *./
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /* true when button first goes up
/* true when reading a script */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNL_INIT(1RUE);
a dopanel yet "/
                                                                                                                                                                                             PNL_INIT (0);
                                                                                                                                                                                                                                                                PNL_INIT (0);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VL_EXTERN Screencoord pnl_ox, pnl_oy; /*_last window origin */
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NI EXTERN Boolean phlytigin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WL_EXTERN Boolean pnl_saveuserredraw
                                                                                                                                                                                                                                                                                                                                                                                                      WL_EXTERN cnar 'pnl_scriptoutfile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LEXTERN Boolean prilignore_delay
                                                                                                                                                                                                                                                                                                                               Vi_EXTERN char 'pol_scripulofile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "L_EXTERN Boolean pnl_controlkey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pnl_mousedown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VL_EXTERN Boolean pnl_justdown;
                                                                                                                                                                                                                                                         Ni_EXTERN int pnl_scriptout fd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WL_EXTERN Boolean pnl_justup;
                                                                                                                                                                               "NL_EXTERN int pnl_scriptinfd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEXTERN Boolean pnl_beveled
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AL_EXTERN Int pul_winsaye;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L_EXTERN int pni_funcmode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .: EXTERN TOO!ean
```

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PNL_EXTERN Actuator *mkact(/*vold (*)()*/); /* parameter decl doesn't seem to work */
PNL_EXTERN Actuator *_mkuseract(/*int, vold (*)()*/); /* parameter decl doesn't seem to w
                                                                                                                                                                                                                                                                                                                                            PNL_EXTERN short pnl_(ade_pattern_index PNL_INiT(PNL_FADE_PATTERN_INDEX);
PNL_EXTERN short pnl_(ade_pattern_size PNL_INIT(PNL_FADE_PATTERN_SIZE);
PNL_EXTERN short pnl_(ade_pattern[] PNL_INIT(PNL_FADE_PATTERN);
/* pattern used to cover unselectable actuators */
                                                                                           Oxelil )
                                                                                                                                                               0x3333 '
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                                                                                                                                                                                                                                                                                                        0x5555,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *pnl_dopanel();
pnl_dompstate();
pnl_drawpanel();
pnl_drawpanel();
pnl_needredraw();
pnl_needredraw();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     userredraw();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    needredraw();
|define PNL_FADE_PATTERN_SILE
|define PNL_FADE_PATTERN_SILE
|define PNL_FADE_PATTERN|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dumpstate();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dumppanel();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * mkpane 1 ();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       drawpanel()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *dopanel();
```

canel.h

extern void pnl down arrow button (Actuator *); extern void pnl left double arrow button (Actuator *); extern void pnl right double arrow button (Actuator *); extern void pnl up double arrow button (Actuator *); down double arrow button (Actuator *); extern void pnl_left_arrow_button(Actuator *); extern void pnl_right_arrow_button(Actuator *); extern void pnl_up_arrow_button(Accuator *); extern void pnl_dhslider(Actuator *); extern void pnl_filled_sl'der(Actuator *); extern void pnl_filled_vslider(Actuator *); extern void pnl_filled_hslider(Actuator *); extern void pnl_filled_hslider(Actuator *); PNL_EXTERN void pnl_endreadscript(); PNL_EXTERN void pnl_endwritescript(); PNL_EXTERN Boolean pnl_beginappendscript(); PNL_EXTERN Void pnl_strwidth(); PNL_EXTERN void pnl_listadd(); PNL_EXTERN void pnl_listade(); PNL_EXTERN boolean pnl_listdelete(); Boolean pnl_beginappendscript(); vold pnl_toggle_button(Actuator *); vold pnl_radio_button(Actuator *); PNL_EXTERN char *g_getstring(); PNL_EXTERN Boolean pnl_beginreadscript(); PNL_EXTERN Boolean pnl_beginwritescript(); Boolean pnl_beginreadscript(); Boolean pnl_beginwritescript(); pnl_analog_meter(Actuator *); PNI EXTERN VOID DNI TOWNSTACT (); PNI EXTERN VOID DNI Addact (); PNI EXTERN VOID DNI I ADDACT (); PNI EXTERN VOID DNI I ADDACT (); PNI EXTERN VOID DNI ADDACT (); PNI EXTERN VOID DNI ADDACT (); PNI EXTERN VOID DNI ADDACT (); extern void pnl_wide_button (Actuator *); pnl_strip_chart (Actuator *); pnl_analog_bar (Actuator *); extern void pnl_dvslider(Actuator *); PNL_EXTERN void pnl_endreadscript(); extern void pnl_vslider(Actuator *); extern void pnl_hslider(Actuator *); extern void pnl_slider(Actuator *); pnl_meter(Actuator *); PNL_EXTERN float pnl_strwidth(); PNL_EXTERN void pnl_listadd(); PNL_EXTERN void pnl_listdelete(); PNL_EXTERN BOOlean pnl_listin(); PNL EXTERN Actuator *pnl mkact (); char 'g_getstring(); / * initilization functions */ .d_gets(); PNL_EXTERN char *9_gets PNL_EXTERN Boolean pnl_ PNL_EXTERN Boolean pnl_ PNL_EXTERN Char endif IRIS_4D olfdef IRIS 4D plov vold extern vold extern vold extern void PNL_EXTERN extern extern extern extern .L_EXTERN Actuator *pnl_mkact(/*void (*)()*/); /* parameter decl doesn't seem to work * .._EXTERN Actuator 'pnl__mkuseract(/'int, vold (')()'/); /' parameter decl doesn't seem char 'g_getstring(Colorindex,Colorindex,Colorindex,char ',int); char 'q_getstring(Colorindex, Colorindex, Colorindex, char ', 163), EXTERN void pnl_newvalact(/*Actuator *, Panel *, Coord, Coord*/); EXTERN void pnl_addact(Actuator *, Panel *); EXTERN void pnl_addsubact(Actuator *, Actuator *); EXTERN void pnl_delact(Actuator *); newvalact (/*1,tuator *, Panel *, Coord, Coord*/); *g_gets (Colorindex, Colorindex, Colorindex) pnl_addtogroup(Actuator *, Fanel *); pnl_fixpanel(Panel *); pnl_fixact(Actuator *); pnl_labeloffsets(Actuator *); pnl_labeldimensions(Actuator *); *q_gets(Colorindex,Colorindex); EXTERN Boolean pnl beginreadscript (char '); EXTERN Boolean pnl beginreadscript (char '); EXTERN Boolean pnl beginappendscript (char '); EXTERN void pnl endreadscript (); EXTERN void pnl endreadscript (); EXTERN void pnl istandd(Alist ', Alist ''); EXTERN void pnl listadd(Alist ', Alist ''); EXTERN float pnl strwidth (Panel ', char '); EXTERN vold pnl listadd (Alist ', Alist ''); EXTERN vold pnl listadelete (Alist ', Alist ''); EXTERN Boolean pnl listin (Alist ', Alist ''); Boolean pnl beginreadscript (char *); Boolean pnl beginwritescript (char *); Boolean pnl beginappendscript (char *); vold addsubact (Actuator *, Actuator *); WL_EXTERN Boolean pnl_listin(Alist *, Alist *); void addtogroup (Actuator *, Panel *); labeldimensions (Actuator "); vold addact (Actuator ", Panel "); labeloffsets (Actuator *); EXTERN vold pnl_endgroup(Panel *); EXTERN vold pnl_addtogroup(Actuator void delact (Actuator *); LEXTERN Actuator * mkuseract(); LEXTERN VOID newvalact(); LEXTERN VOID addio**** fixact (Actuator *); tabeldimensions (); endgroup (Panel '); flxpanel (Panel *); void labeloffsets(); void addtogroup(); vold addsubact () > LEXTERN void delact(); LEXTERN void endgroup(); LEXTERN void addrogroup(LEXTERN void (Ixpanel(); LEXTERN void (Ixact()); LEXTERN void labeloffset endgroup(); .6 ders (); vold vold vold void vold plov p;ov char EXTERN VOID EXTERN Char char 1418_40 EXTERN VL_EXTERN V VC_EXTERN V NC_EXTERN O VL_EXTERN V TO WOLK ./ "L_EXTERN TEXTERN .L_EXTERN C_EXTERN EXTERN EXTERN L EXTERN :L_EXTERN VL_EXTERN "IL FXTERN "L EXTERN EXTERN EXTERN EXTERN EXTERN "L EXTERN EXTERN NL_EXTERN V. EXTERN EXTERN se.

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panel.h

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xtern void pni hmuitisiider (Actuator ');
xtern void pni hmuitisiider (Actuator ');
xtern void pni multisiider Dar (Actuator ');
xtern void pni multisiider Dar (Actuator ');
xtern void pni vmultisiider Dar (Actuator ');
xtern void pni vmultisiider Dar (Actuator ');
xtern void pni hmultisiider Dar (Actuator ');
xtern void pni hmultisiider Dar (Actuator ');
xtern void pni menu (Actuator ');
xtern void pni icon menu (Actuator ');
xtern void pni icon menu (Actuator ');
xtern void pni icon (Actuator ');
xtern void pni scroil (Actuator ');
xtern void pni scroil (Actuator ');
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reen void pni_left_arrow_button();
reen void pni_right_arrow_button();
reen void pni_down_arrow_button();
reen void pni_down_arrow_button();
reen void pni_left_double_arrow_button();
reen void pni_right_double_arrow_button();
reen void pni_up_double_arrow_button();
reen void pni_down_jouble_arrow_button();
                       'xtern void pnl_puck (Actuator *);
'xtern void pnl_floating_puck (Actuator *);
                                                                                  extern void pnl_rubber_puck(Actuator *);
pnl_scale_chart(Actuator *);
                                                                                                                                                                                                                                                                                                                                                                 pnl_multislider(Actuator *);
                                                                                                                                    xtern void pni_typoout (Actuaton ');
xtern void pni_label (Actuator ');
xtern void pni_mouse(Actuator ');
xtern void pni_slideroid(Actuator ');
xtern void pni_slideroid(Actuator ');
                                                                                                                                                                                                                                                                                    xtern void pnl_vpalette(Actuator *);
xtern void pnl_hpalette(Actuator *);
xtern void pnl_dial(Actuator *);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ctern void pnl_dvslider();
ctern void pnl_dhslider();
ctern void pnl_filled_slider();
ctern void pnl_filled_vslider();
ctern void pnl_filled_hslider();
ctern void pnl_filled_hslider();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ctern void pni_wide_button();
ctern void pni_toggle_button();
ctern void pni_radio_button();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tern vold pnl_puck();
tern vold pnl_floating_puck();
tern vold pnl_rubber_puck();
tern vold pnl_typein();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pnl_analog_meter();
pnl_analog_bar();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pnl_strlp_chart();
pnl_scale_chart();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           vold pal_slideroid();
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pnl_hslider();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ern void pal_typeout();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         xtern void pnl_slider();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pol_meter();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ers void pnl label();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      () esnow jud pick use
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ctern vold p
     extern vold
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extern void pnl_palette();
extern void pnl_hpalette();
extern void pnl_hpalette();
extern void pnl_haltisilder();
extern void pnl_multisilder();
extern void pnl_multisilder();
extern void pnl_multisilder_bar();
extern void pnl_multisilder_bar();
extern void pnl_wultisilder_bar();
extern void pnl_wultisilder_bar();
extern void pnl_multisilder_bar();
extern void pnl_multisilder_bar();
extern void pnl_menu();
extern void pnl_frame();

fendif PNL_EDITOR_PARSING